

FROM SPANIARD TO CREOLE:
THE ARCHAEOLOGY OF HISPANIC AMERICAN CULTURAL FORMATION
AT PUERTO REAL, HAITI

By
CHARLES ROBIN EWEN

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By

Charles Robin Ewen

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The adaptive measures used by some of the earliest European colonists are archaeologically investigated at Puerto Real, Haiti (1504-1578). Based on the results of excavations at both Puerto Real and St. Augustine, Florida, it is believed that the processes of incorporation of New World and African cultural elements into Spanish colonial culture began almost immediately and lie at the roots of contemporary Latin American culture. It is specifically hypothesized that the Spaniards practiced conservatism in those socially visible areas associated with male activities coupled with the incorporation of native traits in the less visible, female dominated areas. Archaeologically testable implications of this hypothesis are offered, tested, and tend to support this hypothesis.

CHAPTER I INTRODUCTION

Puerto Real, founded in 1503 just over a decade after Columbus's initial voyage of discovery, was one of the earliest Spanish colonial settlements in the New World. The site provides an important opportunity for archaeological research into initial Spanish colonial adaptations to the New World and their role in the development of an Hispanic-American colonial tradition. Here, it is possible to identify specific ways in which sixteenth century Iberian colonists adapted to New World social, economic, and environmental conditions. Through the combination and exchange of Old World and New World cultural and physical elements, the colonists developed a unique adaptive tradition that characterized the pioneer Spanish settlements and represented the earliest expression of Hispanic-American culture.

The approach to the study of culture contact and acculturation taken here is somewhat unusual in that it emphasizes the effects of the New World people and environment on the European colonists. Traditional studies of acculturation have dealt predominantly with

the impact of the colonial power on the indigenous peoples (Foster 1960:7). Researchers should not forget that this was not a one-way transfer of traits (i.e. colonists to indigenous peoples), but rather an unequal exchange. The Spaniards, while not suffering the enormous cultural transformations thrust upon the Indians, did experience social modifications. It is these modifications that this study will seek to elucidate.

This particular study of culture contact and change must of necessity be confined to Spanish colonial activity in the New World. It is expected that by examining Iberian adaptive responses in various New World settings (i.e. Puerto Real, Haiti and St. Augustine, Florida) it will be possible to arrive at some generalizations concerning Spanish colonization strategies and how they are reflected in the archaeological record. It is important to build solid midrange theory if archaeologists are ever to attempt to formulate general laws governing human behavior.

With the approach of the Columbian quincentenary in 1992, scholarly as well as popular attention is being drawn to Spain's activities in the western hemisphere. Several historical, anthropological, and archaeological works (cf. Deagan 1983, Floyd 1973,

Foster 1960, Gongora 1975, Sauer 1966) deal specifically with Spanish colonial adaptations. Of these, Foster's and Deagan's work have most directly influenced the author.

Foster (1960:7-12) provides the working theoretical model for this study with his idea of a "culture of conquest." Here he acknowledges that, in contact situations, the major changes are to be found in the culture of the recipient group. However, the donor group or "conquest culture" also changes its character to some degree. Foster (1960: 233) states that the basic colonial cultures took shape relatively rapidly. As they became more successful in satisfying the basic needs of the colonists, they become more static or "crystallized" to use Foster's term. Once crystallized, the culture became more resistant to change from the mother country. It is predicted that this situation will be manifest at Puerto Real.

The most extensive archaeological study of Spanish colonial adaptation to the New World to date has been conducted in St. Augustine, Florida. The best summary of this work is Deagan's (1983) Spanish St. Augustine The Archaeology of a Colonial Creole Community. In it she formulates a cultural pattern for the residents of this colonial outpost. On the basis of archaeological evidence accumulated over the last decade, Deagan

(1983:271) suggests that the processes involved in the formation of the Hispanic-American tradition in St. Augustine were common to much of the Spanish New World. Conservatism in those socially visible areas associated with male activities was coupled with Spanish-Indian acculturation in the less visible, female dominated areas. She goes on to suggest that this pattern of behavior should be expected in any situation where a predominantly male group imposes itself on a group with a normal sex distribution. It is this hypothesis, specifically, that will be tested with the data from Puerto Real. An ancillary purpose of this study will be to gain a better appreciation of the past lifeways of the vecinos. How did they live? What did they eat? What did they own? These are all questions that archaeology can help answer.

The material recovered from the 1984-85 excavations represents only part of the Puerto Real database which will be used to test the St. Augustine pattern. Puerto Real appears to have been a grid pattern town with over fifty masonry structures (designated as loci #1-57) situated around a central plaza. The most recent work was conducted at a structure in the northern part of the town, designated Locus 19. Excavations in the plaza area of Puerto Real were carried out in 1979 and 1980, locating two large

stone buildings and a cemetery (Willis 1981, Marrinan 1982). Test excavations were performed in 1981 at areas where previous testing had indicated that there was a range of variability in the status of the inhabitants. These included an area believed to have been a beef and hide processing area (Reitz 1982) and a domestic occupation site believed to represent a wealthy Spanish household (McEwan 1983). The latter area is of particular interest for comparative purposes with Locus 19.

Testing the hypothesis requires a series of test implications, that is; "what would we expect to find if the hypothesis is correct?" In archaeology the material assemblage is a limiting factor. It forces the investigator to rephrase the question to "what would we expect to find preserved if the hypothesis is true?" Because the evidence is often fragmentary and incomplete, the archaeologist must extract all possible information from the archaeological record. This means examining every aspect of the data recovered. Without going into the specifics of the test implications for the hypothesis (this will be done in Chapter 4) it is possible to elucidate various aspects of the archaeological record and point out their value to the interpretation of the site.

Artifacts are the building blocks of induction for the archaeologist. At Puerto Real the artifact assemblage has been divided into twenty functionally specific categories for comparative purposes (Table 1). These categories will be further discussed Chapter VI along with the artifacts in. Ceramics are a key category, since previously they have provided both a chronological framework and indications of the owners' statuses. Similarly non-ceramic artifacts such as glass, tools, weaponry, etc., can be used to suggest their owner's relative status, occupations and ethnic affiliations. In addition certain artifacts (i.e. food preparation items, types of tablewares) give clues as to the type diet enjoyed by the site's occupants. However, there are also other ways of obtaining this particular information.

The faunal assemblage can allow the researcher to make a very good assessment of the meat portion of the Spanish colonist's diet. Of particular interest is the proportion of the diet that is made up of indigenous species (fish, turtles, fowl) as opposed to introduced domesticated species (swine, cattle, chickens). Is differential use of various species a sign of status differences, preferences based on ethnicity or a combination of both? Another question that can be addressed using the faunal assemblage is the effect the

New World environment had on the introduced domestic species. Historical records indicate that the cattle thrived in an environment of extensive, ungrazed pastures, few parasites, and no natural predators (besides humans). The effects of this bovine utopia should show up in the faunal assemblage as skeletal evidence denoting larger and healthier individuals.

Another aspect of Spanish colonial adaptation falls into the realm of architecture and urban design. Were the houses Spanish or aboriginal in design? What materials were used to build the structures and what factors influenced their selection? The grid pattern was the hallmark of Spanish colonial town planning, but had not been officially decreed until 1573 (Crouch et al. 1982:xviii). The excavation of Puerto Real provides an opportunity to see if this decree was implemented to correct haphazard town planning or whether it was merely a formalization of a de facto urban design.

Using the data collected to date it should be possible to formulate a tentative "Puerto Real pattern" of Spanish colonial adaptation. The presence of early period (pre-1550) and late period (post-1550) occupation loci at the site facilitates diachronic analysis of the material to detect the "crystallization" processes in the pattern. Having

delineated a pattern of adaptation at Puerto Real, this pattern can then be compared to the one derived from data obtained from St. Augustine. The comparison of these two patterns will make it possible to detect the effects that different economic and environmental factors have on colonial culture formation.

The next chapter describes the historical, economic, and environmental milieu in which these adaptational processes took place. Chapter III covers the previous archaeological work done at Puerto Real.

The ensuing chapters build on each other, in a logical progression, to the final resolution of the Spanish colonial adaptive pattern. Chapter IV is the formal presentation of the hypothesis and delineation of the test implications. From there the dissertation moves from the ideal to the real. Chapter V describes the field methodology and strategy used at Locus 19, while Chapter VI is a description of the data recovered (e.g. ceramic types, fauna, etc.). The faunal material is quantified in terms of MNI and biomass and species distribution. Chapter VII manipulates the raw data presented in Chapter VI. The data are applied to the test implications, artifact distributions are examined, the material assemblage from the late period is compared to the early period of the site, and the entire assemblage is compared with St. Augustine.

Finally, in Chapter VIII, the analyses are summarized and conclusions are presented. The chapter concludes with an assessment of the material assemblage, a tentative proposal for a colonial pattern, and suggestions for further research.

CHAPTER II
FROM SEVILLE TO PUERTO REAL, AND POINTS IN BETWEEN

The documentary record for the colonization of the Caribbean in general during the 16th century is, on the whole, fairly extensive. Unfortunately this does not apply to Puerto Real in particular. Puerto Real was an economic backwater almost from the beginning and has not merited a great deal of historical research. Many of the pertinent documents that have been discovered were located by Dr. Eugene Lyon in the Archivo General de las Indias in Seville, Spain (Lyon 1981).

Recounting the events that took place at Puerto Real will tell the reader what happened at the site but not why these events took place. To understand the history of Puerto Real, why it was founded, why it was neglected by the crown, and then forcibly evacuated less than a century later, it is necessary to look beyond the city limits. That is, to put events in their proper perspective it is essential to know what was happening throughout the Hispanic world during the 16th century. This chapter will begin with a brief history of Spain, emphasizing the economic imperatives of the

crown and daily life of the citizens in the 16th century, and progressively narrow its scope to the Caribbean, Hispaniola, ending with the town of Puerto Real.

Spain

On the eve of Columbus's departure for the New World, Spain had completed the final stage of its reconquest of the Iberian peninsula, victory over the kingdom of Granada. To some historians, the imperial designs of Spain in America were merely a logical extension of the Reconquista which had begun back in A.D. 718 near the caves of Covadonga in the Cantabrian mountains of northwest Spain (McAlister 1984:3). This Reconquista was not a well-organized conscious, crusade to oust the Moors, but rather a centuries long series of gains and losses by small Christian kingdoms fighting against each other as well as against the Moslem occupants of Spain. Thus, Spain was not and would not be a unified nation until well into the 16th century.

The first steps toward integration were taken, in 1469, when Isabella of Castile married Ferdinand, heir to the crown of Aragon. Though neither monarch ever tried to officially join the two kingdoms into a single administrative unit, their joint reign informally achieved this end. An important factor in the creation

of a national, unified spirit was the royal effort to cleanse Spain of its perceived ethnic and religious impurities. In the wake of the fall of Granada in 1492 all Jews residing in Spain were ordered to convert to Catholicism or leave the country. A decade later, the Moors still residing in the peninsula had to make the same decision. Conversion, though, did not guarantee acceptance into society. Conversos, as the new Christians were called, were discriminated against at every turn. The establishment of the Spanish Inquisition attempted to abolish all social deviation by enforcing a policy of religious intolerance and limpieza de sangre [purity of blood]. That instability still existed can be seen in the turmoil for succession after Isabella's death in 1504. After much difficulty and intrigue, Ferdinand was able to rule both Castile and Aragon until his grandson, Charles (the son of Joanna the Mad and Phillip of Austria) came of age.

Charles I of Spain was Spanish neither by birth nor inclination. His formative years were spent in Burgundy in the south of France. In 1517, when he arrived in Spain to claim his inheritance, he was young, inexperienced, unaccustomed to the ways of Spain, and spoke no Spanish (Lynch 1984:38). Charles was already the king of the Low Countries (Luxembourg, Brabant, Flanders, Holland, Zeeland, Hainault, and

Artois), when, upon the death of his grandfather, Maximillian, in 1519, he inherited the Habsburg's estates of Austria, Tyrol, and parts of southern Germany. His last inheritance allowed him to assume the title of Emperor Charles V.

The Holy Roman Empire, as the realms of Charles V were called, was extensive and included Spain, the Low Countries, Germany, Austria, parts of Italy and outposts in North Africa. Charles was an ambitious monarch and had dreams of uniting all of Europe under his reign. This had unfortunate consequences not only for Spain but for its colonies in the New World as well. First, because his domains were so vast, Charles had little time to devote exclusively to Spain. He spent only 16 years of his 40-year reign actually residing in Spain (Elliot 1963:154). Secondly, the size of his empire and ambitions dictated that Charles would be almost constantly at war, sometimes on as many as three different fronts. These wars were costly and drained Spain's resources to the point of bankruptcy (this did, in fact, happen three times during his son's reign). Spain's fledgling New World colonies were seemingly viewed as little more than a source of wealth to be spent on European wars.

The government and development of the New World colonies were low on the emperor's list of priorities

and so their administration was turned over to one of his counselors, Juan Rodriguez de Fonseca, then archdeacon of Seville. The commercial aspects of the colonies were handled by the Casa de Contratacion, but Fonseca remained in overall command until his death in 1524. The Council of the Indies was then created to administrate the colonies (Elliot 1963:165).

Meanwhile, Charles had to cope with an attempted civil war in Castile when the comuneros [middle classes] revolted in 1520. This revolution was ostensibly to protect the old way of life in Castile. Most Spaniards, especially Castilians, saw Charles as a Burgundian interloper who shipped wealth out of their country and replaced it with foreign ministers. The revolt, however, was disorganized and lacked the support of the powerful nobility, who were more afraid of the comuneros than a foreign monarch. The defeat of the comuneros in 1521 secured the Habsburg dynasty in Spain (Elliot 1963:149).

When Phillip II, son of Charles V, inherited the empire in 1556, he also inherited a war with the Pope and France. The following year he was forced by the Spanish state bankruptcy of 1557 to make peace and abandon the imperial policy of Charles V (Lynch 1984:179). In contrast with the warrior-king Charles V, Phillip II, the supreme bureaucrat, spent his reign

ruling from Spain. This change "fittingly symbolized the transformation of the Spanish empire as it passed out of the age of the conquistador into the age of the civil servant" (Elliot 1963:160). It was from Spain that Phillip directed the ill-fated attempts to hold together the empire and crush the rising forces of protestantism.

This is not to say that Phillip II's tenure as king of Spain was a disaster. On the contrary, Lynch (1984:184) refers to him as "the hardest working monarch in history." Phillip II reorganized the government to more efficiently rule the empire. However, widespread corruption and Phillip's insistence to personally authorize virtually every official decision prevented this system from operating as smoothly as it could have. Nevertheless, it was an improvement. Militarily and diplomatically there were some notable achievements. The Moriscos (Christianized Moors residing in Spain) were quickly put down after an attempted revolt in 1568. At Lepanto, in 1571, the Ottoman Empire was beaten at sea and the Mediterranean was made more secure. Finally, in a series of shrewd maneuvers Phillip was able to gain the crown of Portugal and thus, in 1580, united the entire Iberian peninsula under one ruler.

Unfortunately, Phillip II's personal integrity was not sufficient to make Spain an economic or military success. The defeat of the invincible Armada (1588) and loss of the Netherlands tarnished Spain's military image. The disastrous military campaigns and dismal domestic industrial picture resulted in three bankruptcies during Phillip's reign (1557, 1575, 1596).

Broken both physically and spiritually, Phillip II died in 1598. His son, Phillip III inherited a nation needing a capable ruler to pull it out of its decline. Phillip III did not possess his father's drive or acumen. Spain would never regain its dominant position in world affairs.

Spain never dominated the western world in commerce as she had dominated it militarily and politically. Most Spaniards regarded commerce as they did manual labor, a degrading activity to be avoided if possible (Pike 1972). This ethos explains, in part, why Spain did not develop into an industrial power. Spain's economy, never very strong, changed throughout the 16th century. The following discussion will be primarily concerned with Castile's role in the Spanish economy since this bears most directly on New World affairs.

The roots of 16th century Spain's economy are to be found in the wool trade. By 1300, with the

introduction of a superior breed of Merino sheep, Castile became the leading wool producer in the international market. The Mesta (stockmen's guild) was formed in 1273 by Alfonso X. Though it later became a powerful political entity, the chief duty of the Mesta was to organize and maintain the cañadas (sheep trails) that ran between the summer pastures and winter pastures (Vicens Vives 1969:253). The Crown's pastoral bias worked to the detriment of Spain's agricultural efforts, but the tax base represented by the Mesta was too tempting to resist.

Wool was the principal but not the only export of Spain. Iron was mined and forged in the north while cloth was made from Castilian wool in the central region. Between 1492-1560, Spain was exporting quicksilver, wine, cloth, and luxury items (Vicens Vives 1969:326). The quicksilver (used in the amalgamation of silver ore), wine, and cloth were bound primarily for the American colonies. Spain exported raw materials and metals relying on imports for most of its manufactured goods, its own industry being very limited in scope. Hence, as is exemplified by Seville, Spanish industry was geared more towards quality production of luxury goods, not production of utilitarian goods (Pike 1972:131). This would have a

significant effect on the mercantilistic relationship with her colonies.

The impact of the New World on the Spanish economy was considerable. The colonies represented wealth in a number of different forms. First, as a source of precious metals they were unsurpassed. European mining virtually ceased, being unable to compete in either cost or quantity with New World silver and, to a lesser extent, gold. An unfortunate repercussion of this huge influx of wealth was a staggering inflation rate known as the "price revolution" in Spain (Vicens Vives 1969:379). The colonies supplied a number of other items besides bullion. Hides from the Indies revived the leather working industry in Spain which had been initiated by the Moors. Ornamental leather goods, jackets, and the famous gloves of Ocaña and Ciudad Real were made from West Indian hides and sold throughout Europe (Lynch 1984:125). Other imports included cochineal, indigo, dyewoods, sugar, pearls, and plants such as Cassia fistula (used as a purgative). Many of the West Indian imports paused only briefly in Seville before becoming part of Spain's export trade.

The preceding statements concerning the thriving wool trade and glut of precious metals and tropical products beg the following question, "Why was Spain perpetually on the verge of bankruptcy?" The answer is

simply that Spain's expenses outstripped her income. The next question, then, is "Where did the money go?"

Much of the wealth was used to supply Spain with goods and services not produced domestically. Spain's pro-Mesta policies meant that it was constantly importing food to supplement its meager agricultural production. Also, as previously mentioned, the industrial capabilities were not much better than the agricultural base, forcing Spain to rely on other nations' industries for finished products. Even in its trade with the Americas, Spain lost potential revenue to foreigners. Vicens Vives (1967:98) states that

Genoese bankers monopolized the profits from the exploitation of American mines; Genoese outfitters controlled the provisioning of the fleets. Meanwhile, Italian, Flemish, and French merchants seized control of the colonial trade by means of the fairs at Medina del Campo and the embarkations from Seville and Cadiz.

The trade deficit and foreign domination of trade robbed Spain of much of her potential wealth but it was not the primary drain on the economy.

Most of Spain's revenue went either to the pursuit of imperial conquests or defense from foreign and internal enemies. Since the Reconquista, Spain had been almost continuously at war with at least one adversary, frequently with multiple foes. Charles V initiated many of these costly wars. Elliott

(1963:191) describes the longterm effects of this monarch's aggressive policies on the treasury:

Charles's appeals to the generosity of his subjects and his constant recourse to loans from bankers managed to stave off disaster, but the price paid was a renunciation of any attempt to organize Imperial finances on a rational basis and to plan a coherent economic program for the various territories of the Empire.

The situation did not improve under the reign of Phillip II; if anything it worsened.

Along with costly foreign campaigns came a concomitant rise in the costs of defensive measures that had to be taken against Spain's growing list of adversaries. In Europe this meant that a standing army had to be continuously maintained. As the 16th century progressed, Spain came to have another realm to protect, the Caribbean.

Little royal funding went to the exploration and settlement of the New World. These activities were done primarily at the personal expense of the conquistadors in return for shares of the colonial revenue. Thus, initially the Crown realized a large return on a very small investment. Lynch (1984:155) neatly summarizes the significance of this income stating,

Trade between Spain and the Indies in the 16th and first half of the 17th century, both in value and the volume of goods carried, was the biggest trans-oceanic trade in the world.

It became the most important single item in Spain's economy.

However, as American silver began to pour into Spain, other nations started to take an interest in the source of this treasure, forcing Spain to protect its resource base.

The depredations of first French and later English and Dutch interlopers in the Caribbean obliged Spain to take costly and only partially successful defensive measures. These measures included the implementation of a convoy system to protect the treasure fleets and the construction of harbor defenses at key ports in the Caribbean (e.g. Santo Domingo, Cartagena, and Havana). The convoy system functioned well, in that it generally protected the fleets from attack. The consequences of the convoy system on Caribbean demographics will be discussed later. The harbor defenses were less successful, each of the main ports being sacked at least once in their history. Successful or not, these defences were expensive and required regular upkeep as well as sufficient manpower to maintain any sort of effectiveness at all.

The preceding paragraphs have outlined the history and motivations of the Spanish elite, but what of the rest of the society? Who were the people that settled

the New World and how did they behave before they got there?

Spain, despite the efforts of the Crown and the Inquisition, was a heterogeneous society throughout the 16th century. Castilians, Basques, Catalans, et al., all had distinctive cultural traits which make most generalizations invalid. Since the province of Andalucia, and most especially the city of Seville, contributed the most to the early colonization effort (Boyd-Bowman 1976), this region will serve as the basis for the description of Spanish life in the 16th century. Much of the basic information for this section is derived from Pike's (1972) work Aristocrats and Traders: Sevillian Society in the 16th Century.

Sevillian society was polarized into elites and commoners. Very little existed in the way of a true middle class. The Sevillian elite was composed of six subcategories: nobles, clergy, lawyers, medical practitioners, notaries, and merchants. Of these, the professionals occupied the most fluctuating and insecure status in the elitist social hierarchy. The clergy's status was secure but had a ceiling above which, in theory, they could not aspire. The individuals who had the potential to win and lose the most wealth were the merchants.

Many, if not most, of the merchants were of converso origin. Under the doctrine of limpieza de sangre in effect at the time, all conversos were discriminated against economically and were excluded from public and clerical office (Elliot 1963:218). Naturally many conversos tried to avoid this distinction by commissioning elaborately forged family genealogies and purchasing titles to nobility.

The nobility, on the other hand, by virtue of their pure lineage, had assured social status but were often impoverished. They solved their financial difficulties by either going into business for themselves or marrying into one of the wealthy merchant (i.e. converso) families. This symbiotic relationship benefitted the nobles by enriching their coffers and the merchants by legitimizing their status. So common were these unions, claims Pike (1972:213), that

by the middle of the 16th century, the majority of the Sevillian nobility consisted of recently enobled families of mixed social and racial origins whose commercial orientation and activities reflected their mercantile background.

On the next social level the working classes struggled with much less success to better their social position.

The working classes, which included artisans and unskilled laborers, were generally looked down upon because they performed what was considered manual

labor. Conversos dominated the upper level crafts (e.g. pharmacists, silversmiths, clothing makers). These craftsmen were organized by the government into tightly regulated guilds of which there were about 60. The creation of these guilds had the effect of stifling free enterprise while forming an easily taxable entity for the crown (Defourneaux 1979:93-4). Outside the guilds were the unskilled laborers who were only slightly higher in status than the unassimilated classes.

At the bottom of the hierarchical ladder were the unassimilated classes (Moriscos, slaves, and the underworld). The free Moriscos (Moors who had converted to Christianity) usually earned their living as stevedores, bearers, and occasional farm laborers. The majority of the Moriscos were only nominally Christians, retaining their traditional dress and customs. These differences prevented the Moriscos from becoming fully integrated into Sevillian society. Blacks, on the other hand, adopted Catholicism and Spanish ways and so fared better in Sevillian society.

The underworld held a unique place in the society of Seville. Known as pícaros, these thieves and rogues had informal unions of their own. They were attracted to Seville by the riches of the Indies trade (Defourneaux 1979:88). It is tempting to speculate

that not a few of these pícaros found their way to the source of the New World treasure by signing on ships bound in that direction.

Judging by the number of different classes of people and the disparity in wealth, any attempt to describe the range of housing, dress, and food habits would seem to be beyond the scope of this work. Yet, there are some broad generalizations that can be made in regard to these issues.

Spain in the 16th century had become a powerful world force not only economically and militarily, but in fashion as well. According to Braudel (1985:320), the European upper classes adopted an austere costume inspired by Phillip II's Spain. The male ensemble consisted of dark material fashioned into close fitting doublets, padded hose, short capes, and high collars edged with a small ruff. This began to change in the 17th century as the French penchant for brighter colors became more popular. Even then, official decorum insisted on the traditional dark Spanish outfit being worn at court. Peasants, on the other hand, do not appear to have been slaves to fashion. Their rough shirts and hose changed little through time.

The eating habits of the Spaniards were, not surprisingly, tied directly to level of affluence, varying from the multi-course fetes of the nobility to

the meatless gruels of the abject poor. Yet, despite the differences in content, the main meal for both the affluent and the poor was taken at noon, with no hot food being served in the evening (Defourneaux 1979:152).

Prior to 1550, meat of all kinds was abundant throughout Europe. This relative abundance of meat was due to the catastrophic human population losses of the plagues of previous centuries (Braudel 1984:190-194). As populations recovered, meat became a less regular part of the peasant diet. Defourneaux (1979:103) characterized the poor peasant's stable diet as consisting of rye bread, cheese, onions, and in Andalusia--olives. Milk and butter were scarce. Meat, when available, was served up in empanadillas, small turnovers filled with an unspecified type of meat. For the upper classes meat occupied an essential place in the diet. It was commonly prepared in the form of stew or marinated in spices (e.g. pimento, garlic, or saffron). Esteemed dishes included olla podrida (meat stew) and blancmange (chicken in cream sauce), as well as roast of lamb and beef (Defourneaux 1979:152). Fish was an important feature in the Catholic diet with its many meatless days. Many freshwater as well as marine species were caught and shipped, on muleback, throughout Spain. Despite

smoking, drying and salting the catch, spoilage was a common problem (Braudel 1985:219). Cumbaa (1975:45) points out that the difference between the food of the peasant and the well-to-do was mainly one of degree. That is, the peasant usually ate a vegetable laden stew (puchero) while the elite dined on the heartier, spice laden olla podrida. All classes were partial to chocolate which became widely available after the discovery of the Americas.

Housing, like food habits, also differed more in degree than in kind. The exterior of nearly all houses were plain; any decorative attention was on the interior. In Andalusia, where Arab influence persisted, the upper class house was built of brick or stone around a central patio. The houses of the peasants were simpler, being built of mud and often consisting of only a single room. Furniture was sparse in 16th century Spain, even among the upper classes giving the house interiors what must have been by today's standards a generally stark appearance. The wealthy filled space with a few costly items of furniture and many carpets and tapestries. In a country with little in the way of wood this is not unusual. The peasant home as described by Defourneaux (1979:103) was even simpler.

The furniture comprised a roughly made table and some wooden benches. The beds often consisted only of a simple plank or one simply slept on the floor. In a corner of the main room was the hearth, where occasionally a brushwood fire was lit--nearly everywhere wood was rare and expensive.

The hearth refers to a brazier which was the principal source of warmth in all Spanish homes. In them wood, charcoal and even olive pits were burned (Defourneaux 1979:149). Along with oil lamps and candles, they also provided some light. In 16th century Spain, windows were not covered with glass, they were shuttered and some had coverings of paper or oiled, thin parchment. Floors were of bare earth, tile and/or covered with mats or oriental carpets, depending on the wealth of the inhabitants.

The preceding historical, ethnographic portrait of Spain was drawn as a backdrop for an examination of colonial life in the Caribbean. Only by knowing the history and habits of the colonizing peoples can their responses to what was encountered be properly understood.

The West Indies

The historic period in the Caribbean began with the arrival of Christopher Columbus. The intent of Columbus's first voyage was the discovery of a western route to the spice islands of the East Indies. In this he failed completely, although he stubbornly refused to

admit his error for the rest of his life (Morison 1942:385).

The exact route of Columbus's first voyage is a matter of much speculation and heated debate. The traditional site of the first landfall has been Watling's Island, renamed San Salvador to commemorate the event (Morison 1942:222-36). However, a recent investigation that used computers to take into account the effects of ocean currents and winds, proposes Samana Cay as the most likely candidate (Judge and Stanfield 1986). Other candidates for the landing site have been put forth, but it is sufficient here simply to know that he proceeded through the Bahamas to Cuba (which he mistook for mainland China) and turned east and traveled along the north coast of Hispaniola.

It was along the north coast of Haiti that an event took place that pertains directly to the current research. On Christmas Eve, 1492, the Santa Maria ran aground on a barrier reef just east of the present city of Cap Haitien. The crew was able to reach shore safely, but the ship was a total loss. After negotiations with the native cacique Guacanagari, Columbus decided to leave 39 men to found a small settlement while he went back to Spain. The settlement was named La Navidad in honor of the season. According to Morison (1942:306),

Navidad fort was built largely of Santa Maria's planks, timbers and fastenings, and provided with a "great cellar" for storage of wine, biscuit, and other stores salvaged from the flagship. Seeds for sowing crops and a supply of trading truck to barter for gold were also left.

Columbus returned a year later to find the settlement burned and all the settlers dead or missing. The reasons for the massacre are believed to be the Spaniards greed and mistreatment of the local inhabitants.

Ongoing research by the University of Florida (Deagan 1986) has located what appears to be the village of Guacanagari within which the site of La Navidad was located. This site, if it is indeed the location of La Navidad, is within 1.5 km of the site of Puerto Real. Whether the fact that the Spanish returned to the same area 10 years later is a coincidence or a deliberate act will have to await the discovery of more documentation before it can be answered.

Columbus's first voyage set in motion forces that affected and continue to affect the world to this day. This interaction of the New World with the Old has been labeled "The Columbian Exchange." Alfred Crosby, who coined the term in a book of the same name (1972:219), renders a harsh verdict concerning the consequences of this exchange:

The Columbian exchange has included Man, and he has changed the Old and New Worlds sometimes inadvertently, sometimes intentionally, often brutally. It is possible that he and the plants and animals he brings with him have caused the extinction of more species of life forms in the last four hundred years than the usual processes of evolution might kill off in a million. . . . We, all of the life on this planet, are the less for Columbus, and the impoverishment will increase.

Columbus made three other voyages to the Caribbean. The 1493 voyage was specifically to settle the island of Hispaniola, and was successful after a fashion. The third and fourth voyages, in 1498 and 1502 respectively, were exploratory ventures aimed at finding the riches of what he thought was Asia. If Columbus was adept at exploration he was equally inept at the administration of what he had discovered. This task would be left to the more capable and ruthless Spaniards who were to follow. Relating some of their activities illustrates the historical setting in which Puerto Real developed.

Even while Columbus conducted his third and fourth reconnaissance efforts, other Spaniards were making their own voyages of discovery in the Caribbean. According to Sauer (1969:108), at least four voyages were licensed to take place in 1499, those of Alonzo de Hojeda, Peralonso Niño, Vicente Yañez Pinzon, and Diego de Lepe. It was Peralonso Niño who discovered the

pearl coast of Venezuela that Columbus just missed on his third voyage. After the break in the Columbian monopoly, the entire Caribbean was explored and its major islands and mainland settled. Tierra Firme (or the Spanish Main) as the southern mainland portion of the Caribbean was called, was an early site of intensive exploitation, but not much settlement.

Early colonization efforts focused on the Caribbean islands. In 1508 Sebastian de Ocampo circumnavigated Cuba proving it to be an island. Three years later Diego Velazquez, then Lieutenant-Governor of Hispaniola, undertook the task of settling the island. The following year, in 1512, Ponce de Leon savagely subdued Puerto Rico and used it as a base for his ill-fated exploration of Florida. During this period of early exploration, Hispaniola served as a jumping off point. As the emphasis of colonization shifted to the west, Cuba became the base for the conquistadors. As early as 1519, Hispaniola had already begun to assume a lesser role in the affairs of the Caribbean.

The Caribbean, at the time of earliest Spanish involvement, was wholly subservient to Spain. The keyword that describes the relationship between Spain and the New World is exploitation. According to

McAlister (1984:81) the Crown and its subjects had similar but conflicting interests.

The Crown wished to convert and patronize the indigenous population, establish exclusive sovereignty in its American possessions and, at the same time gain a profit from the enterprise. Conquerors and settlers wanted to exploit the natives, acquire senorios, and become wealthy.

The result was that the Indies were developed only to the point of being profitable to the investor.

Most sought after were the precious metals, particularly gold. Columbus was one of the first to voice its importance, "Gold is the most precious of all commodities . . . and he who possesses it has all he needs in the world, as also the means of rescuing souls from purgatory, and restoring them to the enjoyment of paradise" (quoted in McAlister 1984:80-1). However, gold from the islands was never very substantial and was quickly superceded by the major deposits in the mainland. This prompted a gold rush to the mainland. For the second time (the decline of the native population being the first) the islands were depopulated; the Caribbean economy reorganized around less profitable commodities.

The remaining Spaniards on the islands turned to agriculture and animal husbandry as a means of making a living. Crops such as manioc were grown on large estates. The cassava bread made from manioc flour was

used as a shipstore, as a staple food for native and African laborers, and to supply early exploratory expeditions. Other subsistence crops such as maize, tropical fruits, yams, beans and squash were also raised (Parry and Sherlock 1971:15).

Some plants were grown strictly for profit. Of these cash crops, sugar occupied the primary position of importance. Sugar cane had been among the plants brought by Columbus on his second voyage (Sauer 1966:209), but was not developed commercially for another 20 years. Once started, though, production spread rapidly so that by 1523 there were 24 mills, or ingenios, in operation on Hispaniola (Parry and Sherlock 1971:17). Sugar never became the major export in the Spanish West Indies that it would later become for the French and British colonies. The difficulty in obtaining sufficient numbers of slaves and the inability to compete with gold and silver for the limited cargo space on the fleets curtailed production.

If sugar was the most profitable agricultural product, it was not the only one being exported to Spain. The islands produced some cotton and Sauer (1966:208) mentions the possible existence of an early cotton gin. Cassia fistula, a tree whose bark is similar to cinnamon, was promoted but never became very important as an export. Other plants were cultivated

for their medicinal, spice, and dye qualities and formed a small part of the Atlantic trade. Tobacco, native to the West Indies, was grown by small planters and its cultivation and exportation was not significant until the last quarter of the 16th century (Parry and Sherlock 1971:15). More in line with the temperment of the Spanish colonists was the development of a livestock industry.

As mentioned previously, the economy of Spain was basically a pastoral one. When transferred to the New World, cattle supplanted sheep as the most numerous Iberian domestic animal. Cattle proliferation was so phenomenal that within decades after their introduction, the hunting of wild cattle became a full-time profession.

The settlers derived many products from their extensive herds, leather being the most important. As early as 1512, hides were being exported to Spain and production continued to increase throughout the century (MacLeod 1984:361). Beef was smoked and jerked for shipment and, unlike his European contemporaries, no colonist ever wanted for meat. Another by-product of the island cattle industry was beef tallow. Both edible and inedible tallow were produced. The former was derived from crushed and boiled bones and trimmed fats, the latter from cartilage and sinews. Inedible

tallow was the basic ingredient in the manufacture of soap and candles (Reitz 1986:325). As sugar and gold production declined, hides became the economic mainstay of the islands and figured prominently in the later illegal trade.

How was the settlement of Hispaniola accomplished so quickly? When the Spanish came to the New World they did not find an unpopulated, fertile land waiting to be developed by industrious Europeans, but a land already fully populated. And when Europeans did start to modify and exploit their discoveries, they did very little of the actual physical modification themselves. This was left to the native inhabitants of the so-called virgin lands. The native inhabitants had already been in the New World of the Caribbean centuries before Spain was a nation.

The prehistory of the Circum-Caribbean region is an area of dynamic research. Ideas concerning the population's size, origin, movement, and characteristics continue to change with each new addition to the archaeological database. The generally held hypothesis has been that the islands were originally inhabited by a primitive, preceramic people of uncertain origin, sometimes referred to (erroneously) as the Ciboney. These peoples were displaced and/or absorbed by the Arawaks who migrated

northward from the north coast of South America, probably from eastern Venezuela (Sauer 1969:5). The peaceful and friendly Arawak, in turn, were being overrun by the war-like and cannibalistic Carib, who had made it as far up the island chain as Puerto Rico when Columbus arrived (Parry and Sherlock 1971:3). Different authors vary on the details, but most historians would agree that this scenario generally fits the meager evidence.

One of the former proponents of this scheme, Irving Rouse, has recently taken a different stance on the peopling of the Caribbean. Now, instead of successive waves of invading cultures, Rouse (1986:153) claims "that linguistic and archaeological research . . . indicate that the Island Carib and Taino (Arawak) Indians developed in situ as the result of a single population movement from South America around the time of Christ." He further proposes (1986:155) that the point of entry into the Caribbean was not eastern Venezuela, but more likely the Guianas.

As the Tainos entered the West Indies, they headed for the major streams, settled along their banks some distance from their mouths, and exploited the resources in the surrounding forests, paying relatively little attention to seafood. The only places in South America where they could have acquired these preferences are in the Orinoco Valley and on the Guiana coastal plain.

This revised hypothesis, as Rouse himself points out, needs further testing before acceptance.

However these people came to be there, the aboriginal's general social organization and infrastructural base is fairly well understood. Helms (1984:37) groups the Circum-Caribbean area into two major spheres of political interaction: the Spanish Main (N. Colombia, Panama, Costa Rica, and N. Venezuela) and the Greater Antilles (Hispaniola, Puerto Rico, Jamaica, and Cuba), with the less developed people of the Lesser Antilles, N.E. Venezuela and Guiana linking them. The denser populations were organized into ranked societies with commoners and elites being the major social division. Many of the societies had attained chiefdom status by the time of Columbus's arrival. On Hispaniola this was certainly the case.

Andres Morales and Peter Martyr, early 16th century geographers, divided Hispaniola into five provinces based on native territorial boundaries (Sauer 1969). Other historians (cf. Casas) used other schemes to subdivide the island. In any case, the native way of life was the same. Swidden agriculture provided the villages with most of their food. Plants such as manioc, maize, and yams were grown in cleared plots. Protein was consumed primarily in the form of marine

species, terrestrial animals were generally small and scattered.

The Spanish were at first welcomed by the natives of Hispaniola. Columbus (in Sauer 1969:32) wrote that he had developed a

great friendship with the King of the Land [Guacanagari] who took pride in calling me brother and considered me to be such: and even though they should change their mind, neither he nor his people know what arms are . . . and are the most timorous people of the world. So that the men left there (La Navidad) are sufficient to destroy all that country, without danger to their persons if they know how to rule.

Columbus was exaggerating somewhat in his letter as the fate of the Spaniards at La Navidad was to show. The short-lived first settlement of Columbus warned the natives that the incoming Spaniards were not there simply to trade peacefully. This knowledge, unfortunately, did not allow them to alter the fate that was in store for them.

On his second voyage, Columbus founded a settlement only slightly more successful than his first. Ill-conceived in terms of harborage and resources, Isabela survived only as long as there was no better place. With the establishment of Santo Domingo on the south coast by Bartholomew Columbus in 1496, Isabella was all but abandoned (Morison 1942:430). The Indians were subjugated and forced to

pay an onerous tribute to the Spanish conquistadors. This tribute was in the form of gold wherever possible; otherwise it was paid in spices, cotton or food (Sauer 1966:90).

The tribute the Indians provided was not their most valuable contribution to the Spaniards. Labor was what was needed and was soon forcibly acquired through the agencies of encomienda and repartimiento. These two systems, although they achieved the same ends, were subtly different (McAlister 1985:personal communication). A repartimiento was a division of spoils. Columbus did this with the natives of Hispaniola. There were no restrictions imposed on the recipient of the repartimiento and this practice was never officially condoned. Its existence was tolerated partly because of the dire need for labor and partly, perhaps, because of the ambiguous humanity of the Indians in the eyes of the Spaniards. An encomienda, on the other hand was to put a populated place into the charge of someone. The commander, or encomendero, had the right to extract taxes or labor. Labor was not to be forced, but rather "induced" from the Indians. The encomendero had the added obligation of Christianizing and civilizing his charges. In actual practice, however, these obligations were rarely fulfilled (Lockhart 1969:411-429).

The effects of these systems of labor had catastrophic effects on the Indians. The immediate areas of Spanish conquest suffered a precipitous drop in native population. This decimation of the aboriginal inhabitants can be partly explained by the ruthless extremes of the Spaniards during the "pacification" of the island. Other declines were the result of overwork, abuse, and suicide induced by the conditions of encomienda. The primary agent for the elimination of Hispaniola's natives can be attributed to European-introduced diseases. So great was the population decline that slaving expeditions were sent to neighboring islands to supplement the work force on Hispaniola (Sauer 1966:159).

The complete subjugation of Hispaniola occurred during the governorship of Nicolas de Ovando (1502-1509). With brutal efficiency, Spanish administrative sway was extended throughout the entire island. The system of encomienda was formalized during his tenure. Another accomplishment of Ovando was the founding of 15 towns on the island (Sauer 1966:151). This act served a two-fold purpose; it satisfied the royal instruction to establish proper new settlements on the island, and it also ensured complete subjugation of the natives. Puerto Real was one of these new communities.

Puerto Real

Much of the basic information for this section is taken from Eugene Lyon's (1981) documentary research in the Archivo General de las Indias, in Seville, Spain. Around 1504 Rodrigo de Mexia, a lieutenant of Governor Ovando, led a group of settlers to the north coast of Hispaniola with the purpose of founding a new city. The location chosen for this northern settlement, Christened Puerto Real because of its excellent harbor was very close to the old site of La Navidad. This time, instead of being massacred by the native inhabitants, the Spanish were successful in bending them to their will.

Puerto Real was originally envisioned as a mining colony. The Spanish lust for gold prompted a brief flurry of mining activity in the mountainous hinterland of Puerto Real (Sauer 1966:154). Unfortunately for the settlers no gold was found and existing copper deposits proved disappointing. The area around Puerto Real did, however, serve as a source of labor for the more productive mining districts.

The settlement's early years were its best years. In the first decade of the 16th century, Puerto Real was a thriving community of about 100 households (Haring 1947:207n). In 1508 the Crown granted Puerto Real its own coat of arms consisting of a golden ship

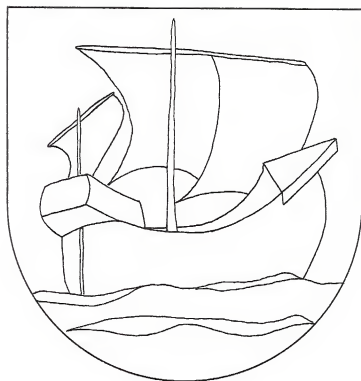


Figure 2-1 The Coat of Arms of Puerto Real

sailing a wavy sea on a field of blue (Figure 2-1). This emblem recalled the arrival of Christopher Columbus in the same area in 1492 (Hodges 1980:3). It was about this time that the town experienced its boom period.

The decline in native population coupled with the rise in demand for labor prompted slaving raids on other nearby islands. In the north the Bahamas were completely depopulated of their Lucayan inhabitants. Puerto Plata and Puerto Real were the ports servicing these slaving operations (Sauer 1966:159). A total of 40,000 Indians were unloaded at these two ports (Hodges 1980:3). As these imported Indians also succumbed to disease and the harsh conditions, African slaves were brought in. The end of the Lucayan trade (ca. 1514) signaled the beginning of a general decline in the towns of the north coast (Lyon 1981).

Spaniards formed only a comparatively small part of the population. The repartimiento of 1514 illustrates the imbalance of the population at Puerto Real. There were only 20 vecinos (in this case probably meaning registered citizens). Of these, three had Castilian wives and two had native wives. Also mentioned are 18 other residents who held Indians. The status of these other residents is uncertain. Of the 839 Indians listed, 540 were Indios de Servicio, which

were the original encomienda Indians of the island. The other Indians were classified as naborias or life-long serfs. These Indians were not even technically free and may have been the imported Lucayans.

The continuing decline of the north prompted the abandonment of the neighboring town of Llares de Guahaba, whose citizens moved to Puerto Real. The fall of the north corresponded with the situation on the island as a whole and can be traced to the Spanish preoccupation with silver and gold.

After the initial gold frenzy on the island had died down, Hispaniola became a base for further exploration. When the real mineral wealth of the New World was discovered on the mainland, the population drain began in earnest (Andrews 1978:54). The mainland gold rush did more than just draw off manpower; it diverted shipping away from the less profitable island ports (see Figure 2-2).

The convoy system of shipping, first implemented in 1542, was designed to insure that the precious metals from Mexico and Peru arrived safely in Spain. All ships were required to sail in convoy and visit only the ports on the convoy's route. One need only glance at the routes of the treasure fleets (Figure 2-2) to see that Puerto Real is located well away from

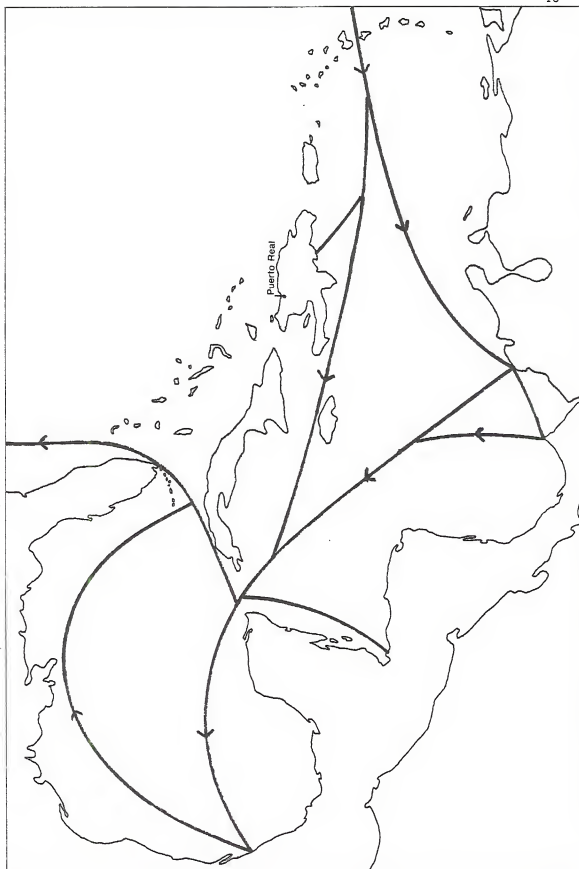


Figure 2-2 Routes of Treasure Fleets

the Carrera de las Indias. Denied access to regular shipping, Puerto Real and the other neglected island ports turned to the rescate (illegal trade) for goods.

Meanwhile on land Puerto Real had to contend with other problems. A smallpox epidemic swept the island in 1518-19 nearly wiping out the Arawak population (Lyon 1981). Puerto Real came to depend more upon imported African labor. So great was the demand for labor that by 1520 African slaves had become the dominant element in the work force (Andrews 1978:11-12). The Indians do make a later appearance in the history of Puerto Real. In 1519 there was a revolt of the natives under chief Tamayo around the environs of Puerto Real. They later joined with the general revolt led by the cacique Enrique. As late as 1532, hostilities persisted when a vecino, his wife, two children and 14 of his Indian slaves were killed. Peace was finally achieved the following year. In this same year 60 colonists arrived in Santo Domingo to repopulate Puerto Real and Monte Christi, located to the east.

By this time the economy of Puerto Real and the islands in general were based upon the hide trade. Leather was much in demand in Europe and the Indies possessed an abundance of cattle. The mercantile policies of Spain decreed all colonial commerce should

be conducted exclusively with the mother country. Unfortunately, bulky hides could not compete with silver and gold for the limited cargo space of the fleets.

Such was the paradox that confronted the citizens of Puerto Real. They could obey the law and do without even the barest necessities, or they could trade with smugglers and enjoy European goods unavailable to them by other means. Another consideration was the trading practices of the smugglers who were not above transacting business at gunpoint. Often the choice would be trade with the corsairs or risk having the town sacked and burned by them. In 1566 the French corsair Jean Bontemps was able to enter Monte Christi, Puerto Real and La Yaguana. He seized 12 vessels and burned Puerto Real (Andrews 1978:96). It is a small wonder that most of the hides produced at Puerto Real found their way into the illegal trade system.

The chief perpetrators of the rescate changed throughout the 16th century. According to Lyon (1981) prior to the mid-16th century most of the foreign interlopers were Portuguese who dealt mainly in slaves. French, interlopers present as early as 1535, were heavily involved in smuggling after 1548. John Hawkins, the renowned corsair, and other Englishmen were operating in the islands after 1560. The Dutch

did not become important in the rescate until the end of the century, but it is their presence which eventually forced the abandonment of the western half of Hispaniola (Andrews 1978:174).

Meanwhile Puerto Real was suffering from both natural and economic disasters. In 1562 an earthquake rocked the north coast of Hispaniola. This was followed by the 1566 incident with the French corsairs. In that same year, Spain ordered a cessation of registry of ships at Puerto Real due to its smuggling activities. Puerto Real sued and had its registry temporarily restored, but this only delayed the inevitable.

Ironically, it was not the loss of revenue that worried the Spanish Crown. The economic importance of the hide trade was negligible. Andrews (1978:195) claims that, "hides were the virtual offal of the Indies, left for Lutherans and mulattoes to haggle over by Spaniards occupied with transactions of a higher order--in sugar, dyes and precious metals." Rather, the main concern of the Crown was the presence of these foreign interlopers, not in the hides they diverted from Spain.

In the ports of northern and western Hispaniola practically the whole population was involved in smuggling (Andrews 1978:208). Spain could not stop the

smuggling (her own Crown-appointed town officials were heavily involved themselves!); neither could she supply these outpost settlements with adequate shipping. In 1578, the settlement of Bayaha was established midway Puerto Real and Monte Christi and populated with the citizens of the two towns. An armed force was required to coerce the resettlement. It was thought it would be easier to stop the smuggling at a single point than all along the coast. However, this was not the case. Smuggling continued with the collusion of the town officials. Spain's ultimate response was the depopulation of the western third of the island in 1605. This ended the Spanish chapter of Puerto Real and began the French chapter of what was to become Haiti.

CHAPTER III
PREVIOUS ARCHAEOLOGICAL WORK AT PUERTO REAL

The site of Puerto Real was discovered in 1974 by Dr. William Hodges. A medical missionary in Haiti for over twenty-five years, Hodges was and is still, an avid archaeologist and historian, whose interests are well known to the villagers around Cape Haitian. Many of the local farmers would bring him old "treasures" they had found while hoeing their gardens. Hodges, who had been actively looking for the site of La Navidad, received an important clue when farmers from the nearby village of Limonade showed him some 16th century artifacts they had found. Of particular interest was a worn copper coin. The coin was identified as a 4 maravedi piece, common in the Greater Antilles during the 16th century. This led Hodges to conclude that there was a Spanish settlement in the area, one that was later than La Navidad established by Columbus in 1492 (Hodges 1980:3).

An examination of the area where the artifacts were found confirmed Hodge's suspicions that this was not the site of La Navidad. Far more artifacts

littered the surface than could be accounted for by a small settlement that had lasted for less than a year. In addition to the surface collected artifacts, several low mounds were found. Excavation of one of these mounds yielded three stone gargoyles and a large quantity of building rubble. One of these gargoyles has the head of an elephant and the body of a sheep or some other hooved animal. Clearly, a substantial settlement had existed in the area. The artifacts indicated that it had a 16th-century Spanish provenience. Based on his knowledge of the history of the area, Hodges correctly concluded that the artifacts must be from the 16th century Spanish settlement of Puerto Real. His discovery opened an important chapter in New World Spanish colonial archaeology.

Realizing the potential significance of the site, Dr. Hodges and M. Albert Mangones (representing the Haitian government) contacted Dr. Charles Fairbanks at the University of Florida in Gainesville. Fairbanks, a Distinguished Service Professor in Anthropology and internationally known expert on Spanish colonial archaeology, also recognized the importance of the discovery and worked with Hodges and Mangones to put together an archaeological project to conduct fieldwork in Haiti. He was successful in his efforts and in 1979

Fairbanks sent one of his graduate students, Raymond Willis, to lead a crew into the field.

The problem orientation of all the archaeological research done at Puerto Real is to better understand how the 16th century Spaniards adapted to the New World. This type of long-distance colonizing effort had very little precedent for the Spanish. What form would Spain's effort take? Adopt New World modes of living? Transplant the Iberian way of life in toto? Synthesize an eclectic mixture of both? Answering these questions has guided all previous research at Puerto Real, including the current research.

The primary goal of the 1979 season, led by Willis, was to positively identify the site. It was decided that the best way to do this within the limits of time and money was to concentrate on the supposed center of the site, specifically the large rubble pile where the gargoyle was found. Before actual excavation began the area was cleared of the thorny brush growing there and a contour map was made. A preliminary walkover survey of the area was conducted to delineate the site boundaries, and a permanent concrete benchmark that would serve as a reference point for all subsequent excavation grids was emplaced. A contour map was prepared and revealed that there were actually two mounds: a rectangular-shaped one running roughly

north-south and a square-shaped rise near the northwest corner of the rectangular mound.

Willis (1984:57) initiated an excavation to discover the nature of the rectangular mound. He decided to bisect the mound with a north-south trench and cross it with two east-west trenches. Ray Willis and Paul Hodges (Dr. William Hodges's son) supervised twenty Haitian workers who excavated thirty-nine 2 x 2 m units. These excavations revealed the remains of what had been a three room masonry building.

Most of the stone foundation was missing, having been robbed by later peoples for use in their own structures. The trenches that they had dug to mine the stone were clearly apparent as dark stains in the buff colored clay. A large amount of broken brick and roof tile littered both the interior and exterior of the structure. Along with the building rubble, Willis recovered a substantial amount of 16th century Spanish majolica, glass, coins, iron artifacts, and faunal material.

The delineation of such a large structure (27 x 7 m) and the recovery of so many unequivocally datable 16th century artifacts confirmed that the site was Puerto Real. There is no other settlement of any size recorded for that time period in the area. A cursory walkover survey of the surrounding area indicated that

the site measured nearly 500 x 500 m. Most importantly, except for the robbing of construction material, the site seemed little disturbed by any post-abandonment activity. Today, Haitians living on the site practice hoe agriculture and only disturb the upper 15 cm of the soil. The success of the first season's excavations encouraged the participants to return to the site the following summer.

The second season (1980) saw the formal entrance of the University of Florida into the project. This allowed a larger scale archaeological effort. Ray Willis returned with three other graduate student archaeologists (Jennifer Hamilton, Rochelle Marrinan and Gary Shapiro) from the University of Florida. The crew of Haitian villagers hired as field hands doubled from twenty to forty.

The 1980 field season focused on the complete excavation of Building A, as the structure discovered the previous year had been named. Results were encouraging (Willis 1984:59).

Willis interpreted this building as the central cathedral or possibly some other public structure situated on the town plaza (Willis 1984:128). Another structure located under the square-shaped mound next to Building A was designated Building B. The town cemetery was discovered a few meters west of this

structure. In the process of putting in a fencepost one of the Haitian workers unearthed a human cranium. A 2 x 3 m test excavation, directed by Dr. William Hodges uncovered the remains of three individuals (Willis 1984:65).

A rich and varied array of artifacts was recovered from the 1980 excavations (Willis 1984:156). A wide variety of Spanish majolica as well as the more common utilitarian wares, such as olive jar or green basin, were found scattered around the exterior of Building A. Some of the most spectacular artifacts came from the test pits used to determine the placement of the trenches. Two of these reconnaissance soundings yielded nearly intact Spanish rapier swords and in another, a reconstructable pitcher made of honey-colored melado ware (Willis 1984:262-3). Other non-ceramic items collected from the general excavation units included locks, keys, hawkbells, buckles, horse tack, scissors, an ornate book clasp, Venetian glass, and over 150 coins. All the coins were the 4 maravedi pieces described earlier, a coin of small worth even in colonial times, which may account for their ubiquitous presence at the site. Perhaps, like modern pennies, the 16th century Spaniards did not consider them worth bending over to pick up when dropped.

While Willis was working on Building A, the other team members pursued ancillary projects. The topographic mapping project, under the supervision of Jennifer Hamilton, was expanded to cover the rest of the central area. She also delineated the site boundaries by laying in a series of linear test-pit transects across the site (Hamilton 1982). Hamilton's findings indicated that the town occupied an area measuring 450 m north-south by 400 m east-west.

Test excavation was not the only means used to sample the site. Gary Shapiro conducted a resistivity survey of the area around Building A during the 1980 season. Using this technique, Shapiro was able to produce resistivity contour maps which allowed accurate prediction of the location of subsurface features (e.g. building foundations, see Shapiro 1984). According to Shapiro

The most important advantage gained by the use of the technique is the ability to save precious excavation time by the prediction of subsurface feature locations, and the ability to generate testable hypotheses concerning site plan. (p. 109)

The resistivity maps also allowed Willis to project the dimensions of the buildings he only partially excavated.

In addition to the survey and excavation, a faunal collection of contemporary Haitian vertebrates was

prepared. Rochelle Marrinan supervised this project in an effort to supplement the comparative collections at the Florida State Museum (Willis 1984:67). Most of the specimens collected were marine species of fish, but some terrestrial species were also taken. These specimens were later used to help identify the faunal material recovered from Puerto Real.

Although much was accomplished during the 1980 field season it became apparent that the surface had literally and figuratively only been scratched. The University of Florida, Organization of American States (OAS) and the Haitian government all reaffirmed their commitment to the Puerto Real project and to continued investigations.

Another large crew conducted field studies during the 1981 season. This time, however, instead of concentrating on one central excavation, several smaller projects were initiated. Rochelle Marrinan directed work at Building B (Marrinan 1982), while Bonnie McEwan (another University of Florida graduate student) and Jennifer Hamilton excavated outlying areas that the previous year's testing and resistivity survey had indicated might be residential structures (Hamilton 1982, McEwan 1983). The results of this season's efforts were productive and, in some cases, enigmatic.

Building B proved to be a thick-walled 8 x 10 m structure whose function could not be positively ascertained. Willis (1984:145) speculates that it was an auxillary to Building A, probably a tower of some sort. Other possibilities include a blockhouse, secure warehouse, or some other public building (Marrinan 1982:54-57). It is not thought to be a residence for several reasons: its massive architecture, its location on the plaza, and the paucity of domestic artifacts recovered from the site. The other two areas excavated did appear to have been habitations, or at least have residential components associated with them.

Loci 33 and 35 (how these loci came to be designated will be discussed later) excavated under the supervision of Bonnie McEwan, appeared to be the location of a high status residence (McEwan 1983:103). This conclusion is based on the amounts and types of high quality majolicas, Venetian glass and faunal remains recovered. In this case the domestic refuse rather than the structure was the most telling clue as to site function. Very little of the actual structure was excavated. The area excavated appears to be the backyard fenceline against which trash had been regularly deposited (McEwan 1983:103).

The most intriguing finds came from the third area excavated during the 1981 field season. Artifacts that

Hamilton recovered from Locus 39 seemed, by reference to documented patterns of status variability in St. Augustine (Deagan 1983), to indicate a low status household. That is, many of the ceramics were crude locally produced wares with the expensive glassware and decorative artifacts largely missing from the artifact assemblage. However, the amount and nature of the animal bone refuse recovered seemed out of place for a domestic context, and it is possible that the site could have been the locus of commercial activities related to cattle.

Elizabeth Reitz, zooarchaeologist now at the University of Georgia, performed the faunal analysis for this area (Reitz 1986). She determined that over 70% of the animal bone recovered was the remains of butchered cattle that had not fully matured. She also noted that the cattle, even though immature, were very large. In fact, the size range overlapped that of aurochs, an extinct bovid believed to be the forerunner of domestic cattle. Reitz attributed this to the fact that when cattle were introduced into the area by the colonists they found no native ruminants which could have been vectors for disease or competitors for food; there also were no predators, except humans. Consequently the cattle attained large size.

It is known from the documents that Puerto Real was a major hide-producing center (cf. Sauer 1966, Lyon 1981, Hoffman 1980). Reitz (1986:327) proposed, from the amount and type of bone elements recovered, that this area of the site was where refuse from skinning and meat preservation was used to make tallow and other cattle industry by-products. The combination of household artifacts and faunal remains indicated that this area may have been used for both residential and commercial use. Reitz also noted that this slaughter/processing area was downwind from most of the town!

The following year (1982) marked a change in supervision of the Puerto Real project. Dr. Kathleen Deagan, former student of Fairbanks and now chairperson of the Anthropology department at the Florida State Museum, assumed direction of the project. Her first decision was to suspend any further excavation pending the completion of the reconnaissance testing and contour mapping program begun in 1980.

A total of 1,475 .25 x .25 m, test pits was excavated at 10 m intervals across the site during the 1982 season. The contents of these test pits were analyzed and the raw data entered into the mainframe computer at the University of Florida. Maurice Williams, Florida State Museum archaeologist and

project supervisor, was able to graphically depict horizontal distributions of various types of artifacts using the SYMAP package (a graphic/analytic program) (Williams 1986). This was an important achievement for several reasons. First, it more clearly delineated the town limits than had previous attempts. Secondly, by plotting distributions of masonry debris, Williams was able to define 57 discrete concentrations thought to represent structures within the town's boundaries. By plotting distributions of high and low status artifacts and artifacts that could be precisely dated, it was further possible to get an idea of economically distinct sections of the town along with demographic shifts through time. These data were invaluable to all subsequent work done at the site and will be elaborated in Chapter V.

In 1984 another project was sponsored by the Florida State Museum in cooperation with the Organization of American States, the government of Haiti, and the Institute for Early Contact Period Studies at the University of Florida. Specifically, this work was being aimed at studying adaptation thru time at Puerto Real. To do this it was necessary to examine a residence occupied during the early years of the town and compare it with an economically similar

residence occupied during the latter part of Puerto Real's existence.

Fortunately the 1984 project was in an ideal position to accomplish this comparative task. Excavations at Loci 33 and 35 in 1981 had provided the necessary data from an early period (pre-1550), high status occupation. The results of the survey in 1982 made it possible to locate a late (post-1550) high status occupation. The field season in 1984 was spent locating this structure and the 1985 season was spent excavating it. Details of the excavation strategy and tactics of data recovery at Locus 19 are discussed in Chapter V. Chapter IV focuses on the theoretical orientation for these investigative strategies.

CHAPTER IV THEORETICAL ORIENTATION

The emphasis placed upon much research on early Spanish colonialism has been understanding how the colonists adapted themselves and their society to the social and environmental conditions encountered in the New World. Recent historical synthetic works (e.g. Bethell 1984, Lockhart and Schwartz 1983, McAlister 1984) demonstrate that historians have long addressed this topic. However, historical archaeologists have only just begun to look at Spanish colonialism.

This raises the question, if historians have long been addressing this topic why should archaeologists bother? What can the archaeologist hope to add that a legion of historians have not already discovered? The fact that many historians have studied Spanish colonialism partially answers the question. Paradigms within a discipline are constantly changing and a new perspective brings fresh insight to an old subject. The entrance of historical archaeology into Spanish colonial studies brings yet another approach, an anthropologically oriented one, to bear on this topic.

Archaeology does more than merely offer a new interdisciplinary perspective, which alone would have justified the effort. By examining the material record the archaeologist can examine cultural processes, verify, supplement, or refute the historical record, and generally gain insight into the everyday lives of past peoples. For Puerto Real this is particularly true.

Few documents pertaining to Puerto Real have been discovered or may ever be discovered. Archaeological data can supplement the scant historic record in such areas as foodways, material possessions, architecture, and urban planning. Documents tell us that smuggling was so rampant that the vecinos of Puerto Real were relocated. How is this illicit behavior manifest in the archaeological record, the record of the everyday lives of the people of Puerto Real?

Archaeology is also instrumental in the study of historically disenfranchised groups (e.g. slaves). Descriptions of the everyday life of the Indians and/or slaves are missing from the documents at Puerto Real, and indeed, colonial records in general. A good example of the contributions of archaeology in this regard is the work of Charles Fairbanks (1984) at Kingsley plantation which illuminated aspects of slave society not present in the documentary record.

Historical archaeology is not a handmaiden to history. It is an equal partner, using different and additional data to answer questions concerning past human behavior. The problem of culture contact and adaptation have become central to Spanish colonial archaeology. It is also the central theme of the current research.

Spanish efforts to colonize previously unknown territory had very little precedent in the 16th century. True, the Canary Islands had been discovered and settled in the 15th century and did provide some lessons for the Spaniards. But the distances involved in a trans-Atlantic effort made the colonization process, by its very remoteness, an essentially new experience.

Having decided to settle Hispaniola, the Spanish had three basic options in regards to settlement strategy. The first option would be total retention of their Castilian lifestyle, rejecting any New World inspired changes. At the other extreme, the colonists could elect to abandon their "civilized" ways and "go native." That is, adopt the cultural behavior of the indigenous peoples in toto. The third, and based on previous research in St. Augustine, most likely alternative, would be a compromise solution. This would involve retaining some traits of the original

society while incorporating new traits of the non-Hispanic societies and modifying other traits in response to the new circumstances. The result would be a hybrid society, distinct from its predecessors. If this is the case, the question then becomes one of distinguishing which old traits were retained and which new traits were adopted, and why?

The anthropological term used for the changes that come about as a result of culture contact is acculturation. But what is meant exactly by acculturation? Acculturation, like the term culture itself, is a loosely defined and often abused anthropological concept. Some anthropologists have seen it as a one way process.

Acculturation occurs when a society undergoes drastic culture change under the influence of a more dominant culture and society with which it has come into contact. (Hoebel 1972)

Originally the term was employed to refer to changes in the culture patterns of either or both groups (Redfield, Linton and Herskovits 1936). But this second definition is so broad as to have little utility.

Edward Spicer (1961:529) uses acculturation in the general sense.

The augmentation, replacement, or combination in a variety of ways of the elements of a given cultural system with the elements of another.

He does, however, go on to define four general types of acculturation: incorporation, assimilation, fusion, and compartmentalization. Spicer (1961:529-536) defines each as follows:

- 1) incorporation--the transfer of elements from one cultural system and their integration into another system in such a way that they conform to the meaningful and functional relations within the latter without disrupting the fundamental system.
- 2) assimilation--acceptance and replacement of cultural behaviors in terms of the dominant society's cultural system.
- 3) fusion--whatever the specific form of combination, the principles which guide it are neither wholly from one or the other of the two systems in contact.
- 4) compartmentalization--a keeping separate within a realm of elements and patterns taken over from the dominant culture.

It is important to note that Spicer (1961:539) sees all forms of acculturation as being preceded by a process of adaptive integration, where nothing important is replaced. That is, an initial acceptance of some novelties (mostly material culture), on a trial basis, which eventually give way to the processes described above. This will have to be taken into account when interpreting the data recovered from

Puerto Real. The problem is distinguishing transitory acquisition from incorporation. This can be done by utilizing a diachronic approach, comparing early to late period proveniences.

The cultural exchanges that come about as the result of a contact situation are rarely perfectly reciprocal. Foster (1960:7) insists that the idea of dominance should be included in the operational definition. It is this concept of dominance that is integral to Foster's model of the "conquest culture." In this scenario of culture contact one society acts primarily as the donor and the other, as the recipient.

The "conquest culture" is a model which represents the totality of donor influences brought to bear on a recipient society. Foster (1960:10-12) states that this is artificial in that what the recipient culture is exposed to represents only a selection from the totality of the donor's culture. The formation of this "conquest culture" is characterized by a stripping down process in which elements of the dominant culture are modified or eliminated. Thus, using Foster's model, the culture of the Spanish colonists was modified before they landed in the New World.

What were the influences that went into the formation of the colonial "conquest culture"? Foster (1960:12) describes two types of selective processes

that go into the formation of a "conquest culture." The first of these are formal processes. These are cognizant, intentional changes where the government, church, or some other authoritative body directs the introduction of selected attributes. An example of this would be the imposition of the grid town plan on the colonists by the Spanish crown. The other type of selective process are informal and include the personal habits of the emigrants themselves, such as their food preferences, personal beliefs, and attitudes.

Another source of influence upon the "conquest culture" is that of the "conquered culture." Although the major changes are found in the culture of the recipient group, Foster (1960:7) acknowledges that in contact situations the donor group changes to some degree. More emphatically, he (p.2) states that, "during the American conquest, Spanish ways were profoundly modified by the existing cultures." The result of these changes (formal, informal, and acquired) has been described as the Spanish colonial pattern. The Spanish colonial pattern, as used in this study, is that suggested through archaeological investigations in St. Augustine.

Early work in St. Augustine was essentially descriptive in nature and dealt with large monuments [e.g. the Castillo de San Marcos (Harrington, Manucy,

and Griffin 1955)]. In the 1950s serious attention was being directed toward sites of the colonial inhabitants of the Spanish community. Later, following trends already manifest in the new archaeology, Charles Fairbanks initiated problem oriented "backyard archaeology," which focused on the everyday life of the average Spanish colonist (Fairbanks 1975). From the early 1970s onward, the guiding research orientation was the understanding of the processes related to the formation and development of the Hispanic-American cultural tradition in Florida. This, as Deagan details,

encompassed a number of more specific anthropological issues, such as the role of acculturation in these processes, the extent and nature of Spanish-Indian syncretism, the crystallization of a Spanish-American criollo tradition, and the understanding of the nature of social variability within it. (1983:53)

Deagan's own work initially focused on the cultural consequences of intermarriage between Spanish males and Indian females (Deagan 1974). The processes of Indian-Spanish miscegenation, called mestizaje, were examined at the 18th century de la Cruz site (SA-16-23) in St. Augustine, Florida. Specifically,

the excavation at the de la Cruz site attempted to establish material correlates for the processes of mestizaje and acculturation represented at the site. (1974:147)

Applying the acculturation models of Spicer (1961, 1962) and Foster (1960) to historical and archaeological data gathered in St. Augustine, Deagan confirmed the hypothesis that

acculturation in 18th century St. Augustine was effected largely by Indian women in Spanish or mestizo household units, within a predominantly male-oriented (military) cultural milieu. (1974:140)

As is so common in any scientific endeavor, the process of testing one hypothesis generated new hypotheses.

Based on the data recovered from the de la Cruz household, Deagan (1974:150-152) proposed several hypotheses to be tested as new data became available. The first stated that the initial stages of mestizaje would have a preponderance of native elements in those areas of culture associated with female activities, but that these native elements would be quickly replaced by criollo or European elements as the mestizos became established in the New World society. Secondly, it was hypothesized that the influences on the mestizo households were derived from the New World criollo culture rather than that of peninsular Spain. Another hypothesis was that the low status of the mestizo household is reflected by its segregation into the marginal areas of the town. Finally, Deagan proposed that the diet of the mestizo would show a greater use of local resources than would European households.

Unfortunately, at the time of this investigation (1974), there was very little in the way of comparative data available. Excavation of ordinary households in St. Augustine was just beginning. However, the avenues of inquiry opened in Deagan's dissertation would be addressed by future research.

The St. Augustine pattern delineated by Deagan (1983) is a direct outgrowth of her dissertation research (1974). She suggests that early Hispanic colonial adaptive efforts were characterized by the incorporation of locally available elements into the colonist's low visibility subsistence and technological activities, while at the same time maintaining Spanish affiliation in such socially-visible activities and elements as clothing, tableware, ornamentation, and religious paraphernalia. This dichotomous pattern was continued and refined through time, eventually crystallizing into a distinctive Hispanic-American colonial tradition. These patterns were independently linked through documentary analysis to social variation and affiliation in the community.

Based on archaeological evidence accumulated over a decade of fieldwork, Deagan (1983:270) suggests that the processes involved in the formation of the Hispanic-American tradition in St. Augustine were common to much of the Spanish New World. Conservatism

in those socially visible areas associated with male activities was coupled with Spanish-Indian acculturation in the less visible, female dominated areas. She goes on to hypothesize that this pattern of behavior should be expected in any situation where a predominantly male group imposes itself on a group with a normal sex distribution.

Puerto Real is an ideal site to test this hypothesis. It was certainly a situation where a predominantly male group (the Spaniards) imposed itself on a group with a normal sex distribution (the Tainos). The differences in geographic location, relative prosperity, and settlement type (exploitation vs. military garrison) between Puerto Real and St. Augustine eliminate these as biasing factors and helps to support the contention that this hypothesis represents a truly pan-Hispanic colonial pattern rather than a Spanish, mainland, garrison pattern.

Certain archaeologically testable implications follow from the hypothesized Spanish colonial pattern. Before these test implications are delineated it is appropriate here to discuss the problems of interpreting past lifeways from the archaeological assemblage. Unlike cultural anthropology, much of which interprets from observed behavior, archaeology must work with preserved behavior. If doing cultural

anthropology is analogous to working a jigsaw puzzle without the benefit of the picture on the box, then archaeology includes the extra handicap of missing many of the pieces. Nevertheless, many aspects of human behavior are reflected, in some way, in the archaeological assemblage.

Determining how specified properties of past cultural systems can be accurately identified and measured is the domain of middle range research (Binford 1981:25). Without going into too much detail, this type of research simply involves the determination of how various types of human behavior are represented in the archaeological record. This is what the test implications attempt to do in relation to the patterns of human behavior outlined in the hypothesis. These tests simply state, "if the hypothesis is true this is what we should expect to find." Should the tests support the hypothesis this does not exclude the possibility that other interpretations exist for the data. However, it does allow us to continue to use the hypothesis to guide future research. With this in mind test implications relevant to the hypothesis can be presented.

- 1) Food preparation activities, as represented in the archaeological assemblage, should show a significant admixture of European and locally

manufactured wares. This is as opposed to a total retention of European utilitarian wares. Supply lines between Puerto Real and Spain were tenuous at best. This situation forced the colonists to seek other means of satisfying the need for cooking and storage containers. Using the pottery of the local inhabitants would have provided an inexpensive answer. Also, the intermarriage of Spanish men with local women offered an avenue for the introduction of these wares since women were most involved with food preparation activities. Non-European utilitarian ceramics, used for cooking and storage of food, as well as manioc griddles and other local elements not typical of the Iberian kitchen assemblage, should demonstrate this dependence.

In the initial stage of colonization, it is expected that the locally available Taino Indian wares will have been used by the earliest settlers to supplement their utilitarian wares. It is furthermore expected that the nature of the locally manufactured items will have shifted from Indian to African-influenced types through time. As discussed in Chapter 2, the Indians of the encomienda assigned to Puerto Real declined rapidly as the result of disease and overwork. They were replaced by imported African slaves who, by 1520, had become the dominant element in

the workforce. The archaeological record should reflect this shift in ethnic composition by a change in the nature of the utilitarian ceramics as the African potters replaced the Indian potters.

2) Status related artifacts should be almost exclusively European in trade or manufacture. Spanish colonial status was linked to the closeness of association with peninsular Spain (cf. McAlister 1963, Morner 1967, 1983). It is expected that the attempts by New World settlers to maintain an Iberian lifestyle (with its accompanying prestige), will be reflected in the use of articles from the Spanish empire in socially-visible areas of daily life.

Socially-visible activities are reflected in many aspects of the material assemblage. A Spaniard's table would be highly visible to neighbors and guests. Following the hypothesis we would expect the tablewares to be composed primarily of majolica, rather than locally made wares. The higher status colonist might include such scarce items as porcelain and glassware.

Similarly clothing and ornamentation would be Iberian in style, if not manufacture. Most clothing items leave no trace in the archaeological record. However, such Spanish clothing accessories as aglets, buckles, and buttons would survive and serve as evidence for the retention of Spanish costume since

local clothing (such as existed) did not utilize these items. Ornaments, such as jewelry, would be expected to show a preference for European styling (i.e. clothing adornments, pendants, rings, etc.) although the material from which they were manufactured might have originated in the New World. This is as opposed to the adoption of native design elements and ornaments encountered by the early colonists.

A final category of material culture that would indicate non-acculturation in the socially visible sphere of activities is that of religious articles. These are expected to remain Hispanic (Catholic) in symbolism and include such items as crucifixes, rosary beads, and religious medallions. An adoption of native religious articles and/or motifs (e.g. *zemis*) would perhaps be an indication of an ideological shift and prompt a reassessment of the hypothesis.

3) Structures at Puerto Real should employ local materials in their construction; however, the architectural style of the buildings and physical layout of the town should be Hispanic in nature. Specifically this would involve rectangular single family houses with fenced or walled yards (Manucy 1978) laid out in a grid pattern around a central plaza. The Taino houses and towns were very different. The average Taino house or bohio was circular and housed

several families (Rouse 1948:525). It was made of cane, plastered with mud, and surmounted by a straw roof (Oviedo 1959:39). The towns varied in size from one to 1,000 such houses, irregularly arranged and having one or more ball courts (Rouse 1948:524).

This implication follows from the hypothesized Spanish affiliation in visible areas of colonial culture, and also from the explicit norms and guidelines for spatial patterns established in 16th century Spain to guide New World town planning (Crouch et al. 1983). Although these ordinances were not established until the latter half of the 16th century, the principles behind them were in effect from the time of conquest in 1492 (Foster 1960:49). It is interesting to note that this was a new idea being tested by Spain as a "directed change." Towns already established in Spain were not uniformly laid out (Foster 1960:16). The limited amount of excavation conducted at Puerto Real does not allow for a detailed description of structure type and town layout. However, enough was uncovered to satisfy the test implication.

4) The diet of the colonist should show a mixture of the Iberian barnyard complex of peninsular Spain and mixed hunting-farming strategies of the indigenous peoples. This pattern of foodways identified in St.

Augustine (Reitz and Cumbaa 1983) was a modification of the traditional foodways in response to a new environment. According to Reitz and Cumbaa (1983:155-156) if the Iberian complex was transferred intact then the New World faunal assemblage would consist primarily of sheep, cattle, and hogs, in that order. The diet would also have included domestic fowl, fish but few wild mammals. To hypothesize that this complex would have survived, intact, is unrealistic since it is documented that sheep do not prosper on the islands. Also since meals were, in many cases, prepared by native wives or servants, we would expect the incorporation of local wild species into the Spanish colonial diet. Reitz and Scarry (1986:99) on the basis of further research in St. Augustine have refined the hypothesized colonial subsistence strategy to seven key responses to the New World environment,

- 1) they abandoned traditional resources unsuited to the new environment; 2) they adopted a new constellation of domestic plant resources; 3) they incorporated aboriginal patterns of wild fauna exploitation; 4) they retained Old World cultigens, primarily fruits, which could be grown locally; 5) they husbanded those Old World domestic animals which could survive with limited attention in the local conditions; 6) they added a few exotic New World cultigens to the locally grown plants; 7) they relied to a limited extent on imported foodstuffs.

Unfortunately, it will be impossible to comment on some aspects of the colonial diet since ethnobotanical

analysis was not done. However, a good faunal sample from Locus 19 and other locii at Puerto Real has been completed allowing comments on the carnivorous side of the colonial diet to be made. Additionally, there is good faunal data from the nearby Taino site at En Bas Saline which can be used for comparative purposes.

5) The material and faunal assemblage will reflect a crystallization of the proposed Hispanic-American colonial pattern through time. It is expected that as the colonists became more specifically adapted to the New World physical and social environment, their methods of coping became standardized. This patterned behavior should be reflected in the archaeological assemblage in such areas as foodways, architecture, and status artifacts. Variations among households from this predicted pattern should become less evident in later periods.

A key issue here is the duration of occupation at Puerto Real, which amounted to approximately 75 years. Is this long enough to detect a crystallization of the Spanish colonial pattern? It is possible to clearly distinguish between late and early occupation at Puerto Real?

In the latter case the answer is yes. As will be discussed in Chapter 6, it was possible, using stratigraphy and artifact terminus post quems to

distinguish the early period (pre-1550) from the late period (post-1550) occupation. The date 1550 was chosen as the dividing point because it was roughly midway through the occupation of the town and because several types of ceramics are known to have been unavailable before this date and can be used as temporal markers.

The question of when crystallization occurred is impossible to pinpoint. Culture change is a dynamic process and any divisions imposed are artificial. This does not invalidate the study of culture crystallization as a process. Some crystallization would be expected after five years. Deagan (1983) described the Spanish colonial pattern using data from the 18th century, 200 years after settlement. It will be interesting to note what changes there are in the material assemblage after only a relatively short period of time.

These test implications provided the framework that guided the recovery and interpretation of the data from Puerto Real, and provide a means of assessing the utility of the working hypothesis. What is being specifically asked of the data is, "how do we characterize the changes that happened to the Iberian culture of the colonists?" Binford's definition of archaeology is,

a discipline that searches for an understanding of the past through the use of objects and other organizations of matter believed to have been parts of past situations. (1981:22)

The task, then, at Puerto Real is to identify patterns in the material culture that reflect the changes that the Spaniards underwent en route to becoming creoles.

CHAPTER V
STRATEGY AND TACTICS AT PUERTO REAL

The purpose of the 1984-1985 fieldwork at Puerto Real was to identify patterns in the material culture that reflect the creolization of the colonists' culture. This was done by testing implications arising from the hypothesized pattern of Spanish colonial adaptation (see Chapter 1) identified in St. Augustine, Florida by Deagan (1983). Archaeological testing of this hypothesis required the extensive excavation of a Spanish colonial habitation outside of St. Augustine. The site of Puerto Real fulfilled the requirements of the proposed test.

The project was conducted over two, ten-week periods during the summers of 1984 and 1985. Excavations were conducted by the author, a field assistant, a field laboratory supervisor, and a crew of between twelve and fifteen Haitians. Based on the 1982 survey of the site, a suitable area was selected and excavated. A brief recapitulation of the 1982 survey will illustrate its pivotal role in selecting the locus of excavation.

The 1982 field season complemented previous work at Puerto Real by establishing the town boundaries and completing a program of systematic sub-surface sampling and topographic mapping over the entire site (Williams 1983). Material recovered from the tests was quantified and the data entered into the mainframe computer at the University of Florida. Using the SYMAP graphics program, several maps were prepared which portrayed the subsurface distribution of various types of artifacts throughout the site. By mapping the distribution of masonry debris, it was possible to discern the locations of masonry structures. Fifty-seven structural areas were defined and could be categorized according to the abundance and diversity of Spanish and non-Spanish artifacts associated with them (Fig. 5-1). These groups are believed to represent different social and economic components of the community and are interpreted by reference to the documentarily verified archaeological patterns of Spanish St. Augustine (Deagan 1983).

Using the computer generated maps, a suitable area was selected for excavation. Of the fifty-seven possible structural areas defined by Williams (1986), Locus 19 (Fig. 5-2) seemed the most likely to provide the information sought. The abundance of masonry debris indicated the presence of a structure and the



Figure 5-1 Masonry Loci at Puerto Real (Williams 1986, reprinted with permission)

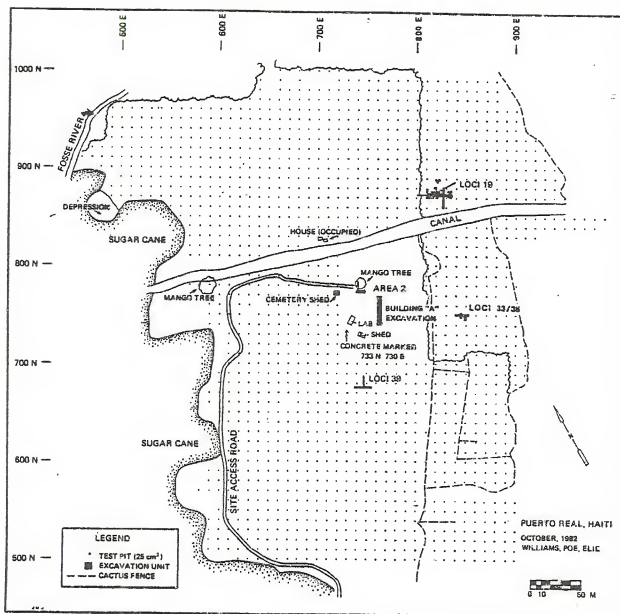


Figure 5-2 Location of Locus 19

(Williams 1986, reprinted with permission)

volume and type of ceramics in this locus suggested a high status occupation dating to the second half of the 16th century. This would permit diachronic comparisons with Loci 33 & 35, an early 16th century, high status household, while controlling for economic status.

In addition to the SYMAP map, reference was made to the contour map prepared by previous crews. The areas outlined by the SYMAP were a good guide but still were only able to localize the structural areas to within half an acre. The contour maps permitted a better on-site orientation for the excavator as well as delineating suspicious, yet subtle topographic features.

The grid system employed at Locus 19 was merely an extension of the grid established by Willis (1983:50) who describes it as

modeled after the Universal Transverse Mercator Grid System used on all geodetic survey maps. It involves the use of coordinates given in meters north and east of an arbitrarily defined point to the south and west of the outermost projected limits of the site. The archaeological grid was angled 30 east of magnetic north to coincide as closely as possible to the alignment of the Spanish grid-town plan as suggested from the contour map of Puerto Real.

Willis had also placed concrete markers at 80 m intervals on the grid. Although some of these markers

had been dislodged by local farmers who had tethered their cattle to them, enough remained in place so that the grid could be reestablished.

A transit station was set up to ensure vertical control of the units. The excavation units themselves measured 1.5 x 2.0 m and were excavated in arbitrary levels of 10 cm. The original intention had been to excavate by natural levels as had been done on previous projects (McEwan 1983, Willis 1984). However, very little soil differentiation was apparent at Locus 19. Natural stratigraphy consisted of a thin humus layer overlying a homogenous clay/loam which, itself, surmounted a sterile clay subsoil. The extreme arid conditions which rapidly dried out the soil despite the use of garden sprayers and sun shades, did not make the job of distinguishing natural levels any easier. By excavating in 10 cm increments it was possible to differentiate between early and late occupations of the locus on the basis of datable artifacts. Each unit was mapped after every completed level.

The cataloguing system established during the 1979 field season was continued on all subsequent University of Florida projects. All archaeological proveniences except features (i.e. zones, areas, post molds, etc.) were numbered consecutively within each excavation unit. Features, discrete deposit attributable to

definite human activity, were numbered on a site wide basis, regardless of unit location. Each provenience was assigned a unique Field Specimen (FS) number on a consecutive basis as well.

All excavated soil was passed through 1/4" hardware cloth attached to a rigid frame. It was not possible to water screen due to the extreme scarcity of water at the site. Water for use in the lab and on the site had to be hauled by bucket from a well several hundred yards away. However, the Haitian workers were exceptionally perceptive and often found the tiniest artifacts (e.g. straight pins, seed beads) in situ. The workers at the screen were equally adept at spotting small artifacts. In addition soil samples were taken of all discrete areas and features. Flora, fauna, artifacts, and soil samples were bagged separately. The bagged material, after initial field processing, were analyzed at the laboratories of the Florida State Museum in Gainesville. The soil samples were fine screened to recover small artifacts and animal remains.

A field lab was set up on the site for preliminary processing of all recovered material before shipment to the United States. All excavated material was sent to the lab where it was rough sorted into four main categories: 1) artifacts, 2) fauna, 3) brick, 4) stone.

The artifacts and faunal material were washed and air dried on racks made especially for that purpose. The brick and stone was weighed and discarded. This was done because weight was all that was necessary to determine density and distribution of building rubble. Also the cost of transporting several tons of rubble to the U.S. was prohibitive. However, any brick that retained any two of three measureable dimensions (height, width, and length) was saved. The same is true of any piece of masonry that was at all unusual (e.g. maker's mark, glazing, etc.). After the artifacts were washed and dried, they were sorted according to composition (e.g. ceramic, glass, iron) rebagged and carefully packed into labeled cardboard cartons for shipment. Records were kept in the lab cataloging the number of bags and their contents. This acted as a useful double check to the field specimen catalog maintained at the site.

All artifacts were shipped to the Florida State Museum where they underwent additional analysis. Upon the completion of the analyses, the artifacts will eventually be returned to Haiti for permanent curation.

Fieldwork in 1984 was particularly challenging in that the author had never been to Haiti before, let alone visited the site. Assisting in the field was fellow graduate student, Greg Smith. Tim Deagan,

recent graduate of Florida State University and brother of the principal investigator, was in charge of setting up and running the field laboratory. The buildings, a storage shed and lab shed, built in 1979 during Willis's project, were found to be in good general repair.

Shortly after our arrival at the site, local villagers and farmers, who had worked for past projects, arrived inquiring about work with the current project. Thirteen men were hired and the crew was put to work immediately clearing the area to be excavated. The area selected for excavation was not currently under cultivation but was covered by tall grass and low thorny trees known as baya honda trees. Several days were required to clear the area using machetes.

It was decided to place the initial excavations, on a low rise of ground, in the middle of the masonry concentration as depicted on the SYMAP. Excavation confirmed the prediction that Locus 19 was primarily a high status late period occupation. A total of twenty-five 1.5 x 2.0 m excavation units were excavated to sterile subsoil in 10 cm levels. All digging was done by trowel. This tool proved most suitable for the recovery of small fragile artifacts and was most efficient for removal of the hard, baked clay/loam soil. The Haitians were also very adept at the use of

the trowel due to previous experience on the other projects. To minimize the dessicating effects of the sun, shades were constructed. They consisted of a wooden frame covered by a nylon parachute (purchased cheaply as surplus property) of a size just large enough to cover an individual unit. These sun shades were lightweight, portable, and functioned well for the season. Uncompleted units were covered with plastic sheeting when not being excavated.

Excavations in 1984 yielded over 29,000 artifacts and 335 kg of faunal material from an extensive midden deposit. The artifacts, that will be described in more detail in Chapter 6, included a wide array of 16th century Spanish material highlighted by some unique and interesting items. A small gilded unicorn pendant was recovered along with forty-six copper maravedis and an abundance of ornate Venetian "latticino" glass. A couple of intricately worked brass and enamel book clasps were also found. Frustratingly, although a phenomenal amount of 16th century refuse had been unearthed, the house associated with the midden eluded detection for most of the field season.

Finally, five test trenches were excavated in an effort to locate the structure. As is so often the case in archaeology, the structure was discovered during the last week of the 1984 field season, under a

large pile of backdirt. The excavation strategy immediately changed in response to the discovery. All work on the exploratory trenches ceased and the efforts of the entire crew were brought to bear on exposing as much of the foundation as possible in the time remaining. Heroic efforts on the part of the crew exposed eight meters of the wall, but no corner was found.

The foundation consisted of a paired row of large rocks with smaller stones resting on top. On the final day of field work, plastic sheeting was placed over the in situ foundation stones and the site was backfilled. The location of the foundation was carefully noted and corner stakes to the units pounded flush with the ground to aid in locating the area in the following year

The 1985 field season picked up where the previous season left off, with some exceptions. Assisting in the field was Patty Peacher and supervising the lab was James Cusick, both new graduate students at the University of Florida. The Haitian crew, which had performed admirably in the field the previous season, was rehired virtually intact.

A new transit station was established at Locus 19 and the grid reestablished. The first task then was to locate the previous years excavations, which was done

by relocating and reestablishing the 1984 grid system. The plastic and backfill were removed and the units recleaned. The complete excavation of the foundation was the primary object of the 1985 season. Excavation units were put in to follow the wall to the corners. The wall extended for a distance of over 20 meters and had two brick drains set in the western section. The length of the wall surprised everyone including the Haitian workers who claimed that it "extended all the way to Santo Domingo." A cross trench, 22 m in length, was placed midway along the foundation in an effort to locate the opposite wall of the structure. The wall was not found using this technique.

At the end of the 1985 season a total of forty-six 2 x 2 m units had been excavated. These excavations yielded 20,367 artifacts and approximately 146 kg of faunal material. Over 500 kg of brick and stone rubble had been weighed and discarded at the lab. Fewer artifacts and fauna were recovered during the 1985 project due to location of the excavation units. The 1985 project concentrated on the structure itself and not its midden as had the previous season.

A more detailed description of the artifacts together with the associated architectural features are presented in the next chapter.

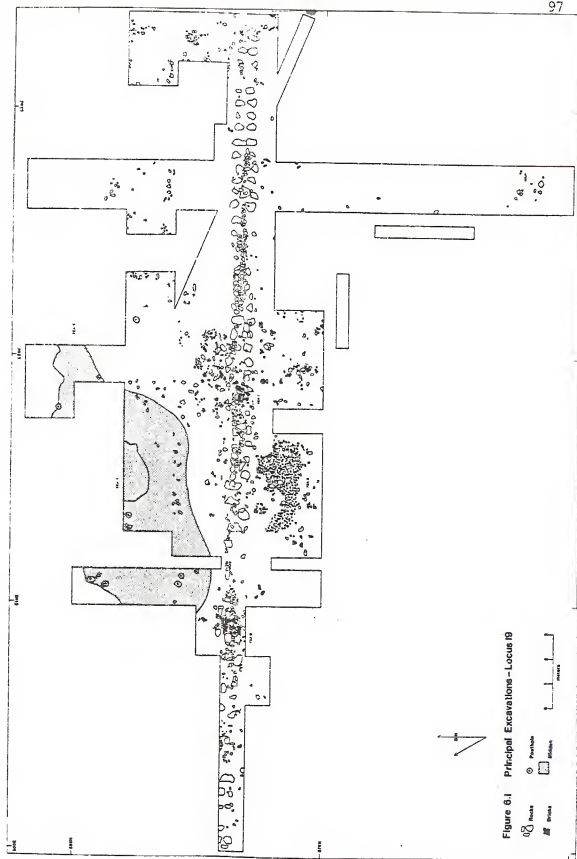
CHAPTER VI EXCAVATED DATA

This chapter will consist of a presentation of what was found at Locus 19. These data will be presented with a minimum of interpretation so as not to bias future researchers who wish to use this chapter for reference purposes. The author's interpretations, as applied to the research questions, will be given in the following chapter.

Locus 19 Proveniences

Stratigraphy

As discussed briefly in the previous chapter, very little soil differentiation was apparent at Locus 19. The uppermost level was a disturbed humic layer of a dark brown friable loam approximately 2-4 cm in depth. This is, no doubt, the result of hoe horticulture as practiced by the local villagers. The next level was the artifact bearing zone. This consisted of a medium grey/brown hard packed clay/loam varying between 15 cm and 40 cm in depth. Occasionally another level could be determined beneath the second level. It was difficult to distinguish from the above layer, having only a slightly lighter color and much fewer artifacts



and fauna. This overlay a yellowish clay that was devoid of artifacts and was considered to be sterile subsoil.

Midden

Several of the more interesting proveniences will now be discussed. Reference should be made to the site map (Figure 6-1) for all the following provenience descriptions. A dense concentration of artifacts (Figure 6-2) measuring 12 m E-W by 6 m N-S occupied the NW quarter of the excavated area. The matrix was a dark brown loam and varied between 10 to 30 cm in depth. A majority of the artifacts and most of the faunal material recovered at Locus 19 come from this deposit. The majority of the midden dated to the late period and overlay Feature 1.

Feature 1

This feature was located in three units 876N/813E, 876N/814.5E, and 876N/816E. Only the south half of Feature 1 was excavated. Its plan view shape was probably circular. Excavation revealed that it was a relatively shallow (25 cm depth) basin with sloping sides. It contained a loose dark brown loamy soil with many artifacts and much faunal material. Only the top layer of Feature 1 dated to the late period. The feature was located almost in the center of the general midden deposit and was covered by it. An interesting

Figure 6-2 The midden at Locus 19



facet of this feature was the presence of several whole turtle carapaces in and around the deposit. Based on the chronological and physical position of the feature, it appears that trash disposal for Locus 19 initiated with Feature 1 and eventually overflowed to form the general midden.

Feature 3

This feature was located in 880N/817.5E, 880N/819E, and 878N/819E. It was defined from the concentration of artifacts. They are packed in a dark grey/brown loamy matrix. The depth of the feature varied considerably from unit to unit but averaged about 25 cm. A concentration of burned faunal material was noticed in 880N/817.5, but it did not seem to be a true hearth, rather a dump for some burned material. It appears that this feature represents the northeastern extent of the midden.

Feature 5

The foundation wall which initiates at the base of level 2 (20 cm) consisted of a linear arrangement of large, paired rocks with smaller stones resting on top. The line extended 32 m in an E-W orientation. Few artifacts were found among the rocks. However, many bricks were scattered along its length (Figure 6-3).

Figure 6-3 The wall foundation at Locus 19



Figure 6-4 Feature 6; the brick pavement

Figure 6-5 Feature 8; A brick drain



Feature 6

This feature is defined by a roughly rectangular concentration of small rocks and brick bats. Located between 812E and 817E, it is one layer deep and appears to form a part of some sort of pavement. It was impossible to tell the true extent of the original feature. The surface was uneven but this may be the result of the 1562 earthquake (Figure 6-4).

Features 7 and 8

Both of these features appear to be brick drains set into the western half of the stone wall foundation (Feature 5). The features are composed of two stacks of brick 3 tiers (Feature 7) and 4 tiers (Feature 8) over a brick paving. Some dressed stones are included in these features and traces of mortar were found throughout. Both drains empty to the north. Feature 8 appears to be the more intact of the two (Figure 6-5).

Puerto Real is an extremely rich site. In the century following its abandonment, French planters robbed the buildings of most of their brick and stone but not, apparently, of their refuse. With the above ground portion of the town removed, the site was quickly forgotten. Subsequent inhabitants did little disturbance to the site. The local Haitian villagers practice only hoe horticulture. Thus the material

TABLE 6-1 ARTIFACT CATEGORIES

GROUP #	ARTIFACTS
1	MAJOLICA
2	EUROPEAN UTILITARIAN CERAMICS
3	NON-MAJOLICA EUROPEAN TABLEWARES
4	COLONO AND ABORIGINAL CERAMICS
5	KITCHEN ARTIFACTS
6	STRUCTURAL HARDWARE
7	WEAPONRY AND ARMOR
8	CLOTHING AND SEWING ITEMS
9	PERSONAL ITEMS AND JEWELRY
10	ACTIVITY RELATED ITEMS
11	UNIDENTIFIED METAL OBJECTS
12	MASONRY CONSTRUCTION ITEMS
13	FURNITURE HARDWARE
14	TOOLS
15	TOYS AND GAMES
16	HARNESS AND TACK
17	RELIGIOUS ITEMS
18	MISCELLANEOUS SUBSTANCES
19	UNAFFILIATED ARTIFACTS
20	HISPANIC TABLEWARES

assemblage associated with Puerto Real shows little evidence of disturbance.

During the 1984-85 field season over 49,000 artifacts were recovered. The material assemblage was organized into functionally specific groups for analytic and comparative purposes. These categories were first proposed by South (1977:92) and have been modified for work on Spanish colonial sites (Table 6-1). The purpose of these groups is to provide a meaningful organization of the artifact assemblage in terms of human behavior as well as a basis for inter and intrasite comparison. Particular attention has been given to the ceramic assemblage, because it has been demonstrated at St. Augustine to provide a chronological framework for assessing change, as well as an index for measuring status differences within the community (Deagan 1983: 231-262).

The faunal assemblage was as extensive as the artifact assemblage. The sheer bulk of the fauna (over 480 kg), made a complete faunal analysis impractical given the time and financial constraints of the project. A representative sample was selected which included all the fauna from the major features as well as some from the zone deposition. The particular quantification techniques applied to the faunal

assemblage will be discussed later in this chapter. The general quantification scheme applied to the entire material assemblage is discussed below.

The material from each provenience was analyzed and recorded on a separate analysis sheet (Appendix 1). All quantifiable data (i.e. type, weight, frequency) were entered onto the front of the sheet while artifact sketches and comments were recorded on the reverse. The analysis sheets contain all the information from each provenience and serve to record detail not practical to enter onto the computer.

The large array of data made even the simplest calculations and summaries a time consuming task. To facilitate the manipulations of this cumbersome database the IBM mainframe computer at the University of Florida was used. This decision required that the data be reorganized and entered in coded form. Each line of data entered contained quantitative, descriptive and locational information. A description of the information recorded on the code sheet has been included as Appendix 2.

The artifacts recovered will be described both qualitatively and quantitatively sequentially according to group number. An exception will be made in the case of Group 20, Hispanic tablewares (non-majolica) in order to keep the ceramics together as a group. A

table denoting the distribution of the types of artifacts within each group will appear at the end of the artifact section of this chapter.

After analysis of their artifacts the proveniences were assigned to either the early or late period of occupation. The period proveniences were distinguished by stratigraphic position and the presence of such ceramics as Orange micaceous ware, Ming porcelain and Cologne stoneware all of which are characterized by previous research as having a terminus post quem of 1550. Proveniences in the earlier time periods were distinguished both stratigraphically and by the absence of any late ceramic time markers. The data recovered from the excavations revealed that levels 1 and 2 were relatively undisturbed by post 16th century activity and could be dated to the late period of occupation of the town. Level 3 was a transitional strata between the early and late periods, and level 4 appeared to date to the pre-1550 occupation of Puerto Real.

Each artifact will be described according to its composition, decoration, form, and chronological placement (if known). Non-classified types will be carefully described and illustrated whenever possible. The primary references used for identifying the ceramics were: the comparative collection of the

Figure 6-6 Majolica

Columbia Plain escudillas (left FS# 3342, center FS# 3182) Yayal (right FS# 3168)



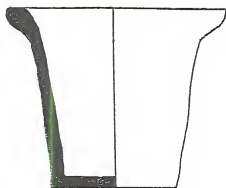
Florida State Museum, Deagan (1987), Goggin (1968), and Lister and Lister (1982).

Group 1 - Majolica

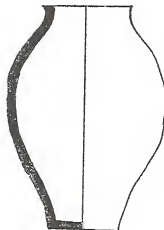
Bisque. Though specimens of Bizcocho, a thin, unglazed, non-utilitarian ware, have been found at Puerto Real (Hodges Collection, Limbe, Haiti), ceramics in this category primarily refer to majolica fragments that have lost their glaze. It is for this reason that they were included in this category. Most specimens were extremely small.

Caparra Blue. Named for the site of Caparra, Puerto Rico, Caparra Blue is a distinctive two tone majolica. The exterior is a solid dark blue enamel with the interior being white or off-white. Some of the specimens from Puerto Real have a slight greenish cast to the interior white enamel. Deagan suggests that these may have been produced at Panama Vieja in the late 16th century (1987). This type is known only in the albarello or drug jar form and dates to the 16th century (Goggin 1968: 134-135).

Columbia Plain. This type was easily the most numerous majolica type at Puerto Real. It accounts for over 80 percent of all the majolicas recovered from the site. This was also the most variable types in the assemblage. The glaze ranged from a thick glossy opaque white to a thin, matte, pinkish off-white. The



Bacin



Tinaja



Lebrillo



Jarro



Plato



Albarello



Pichel



Taza



Pocillo



Escudilla

Figure 6-7 Vessel Forms

paste was uniformly chalky in consistency but varied in color from terra cotta to cream. Several vessel forms were noted. Most numerous among these were escudillas and simple platos (see Figure 6-6). However, such forms as pichels, jarros, and porringers were also found (Figure 6-7). Several pieces had been identified as a variant known as Columbia Plain Gunmetal described as having a "darkened, rather than white ground [that]...varies from a dense irridescent black to a light specked grey"(Lister and Lister 1982:48). Recent research has shown that this is probably due to post deposition discoloration (Deagan 1987). Another variant found at Puerto Real that is, in fact, real is Columbia Plain Green. This variant makes up two percent of the majolica assemblage and is simply a Columbia Plain Vessel that has been partially covered with a clear green glaze. This is an early variant dating to the first half of the 16th century (Goggin 1968:118). An interesting phenomenon noticed on several of the Columbia Plain specimens was the presence of marks that had been scratched through the glaze of the finished vessel (Figure 6-8). Goggin (1986:119) noticed this on sherds from the Convento de San Francisco at Santo Domingo and attributed them to property marks put on by the owners rather than the makers.

Figure 6-8 Owner's marks on ceramics

A--FS# 3281

B--FS# 3165

C--FS# 3159

D--FS# 3395

E--FS# 3310

F--FS# 3343, Isabela polychrome fragment

G--FS# 3292



Cuenca Tile. Only one fragment of Cuenca tile was recovered from Locus 19 although over a dozen were found at Building A (Willis 1984:213). All of the tiles corresponded to Goggin's type B. This type features floral motifs deeply stamped onto the surface and colored with blue, green, honey-colored brown, and manganese. This type dates to the 16th century (Goggin 1968: 145-6).

Lusterware. Also known as Reflejo Metalico, this interesting type is represented by a single sherd at Locus 19, and is rare in New World contexts in general. It is characterized by a design of a reflective, iridescent luster of copper-gold on an off-white base (Deagan 1987:38).

Isabela Polychrome. A dozen pieces of Isabela Polychrome were recovered from Locus 19. All were plato forms, including one large rim fragment. This type has a Columbia-Plain type paste and a dull blue and manganese purple design on an off-white enamel surface. Designs are concentric lines of blue surrounding a band of purple or stylized alafias (Goggin 1968:126-7). The time range of this type appears to be the first 3/4 of the 16th century (Deagan 1987).

La Vega Blue on White. This is a very poorly known type. Only three sherds were recovered and their

identification is uncertain. Goggin (1968:130-1) defines it as crude, simple floral motifs executed in blue on a Columbia plain base. Mostly found in plato form. Deagan points out that the type fragments are small and may actually be from Yayal blue on white vessels having central designs (1987).

Ligurian Blue on Blue. A minor type at Locus 19, Ligurian Blue on Blue was originally called

Ichucknee Blue on Blue by Goggin (1968:135).

Ichucknee Blue on Blue was later divided into Ligurian Blue on Blue and Sevilla Blue on Blue. The former is, "a thin, delicate, blue ground ware carrying fine darker blue patterns, occasionally brightened by a patch of yellow or a bit of white" (Lister and Lister 1984: 72). This type is solidly dated to the second half of the 16th century (Deagan 1987). The specimens recovered at Locus 19 were small fragments of plato and small bowl or cup forms.

Montelupo Polychrome. This was represented at Locus 19 by the most common of its three varieties. It, "has a light cream-colored paste and thick, rather heavy vessel bodies...<and> exhibits a design of geometric bands in orange, yellow, blue, and black-outlines yellow" (Deagan 1987). Though not numerous, Montelupo polychrome is not uncommon at

Puerto Real having been found on the surface (Hodges Collection) and at Building A (Willis 1984:158). This type dates to the first half of the 16th century (Lister and Lister 1984: 72).

Sevilla Blue on Blue. Formerly included in the category Ichtucknee Blue on Blue, this type is a Sevillian form inspired by the Italianate Ligurian Blue on Blue. It is characterized by broad heavy-stroked patterns of dark blue on a lighter blue background. Poorly represented at Locus 19, it has a TPQ of 1550 (Deagan 1987).

Sevilla Blue on White. A recently defined type (Lister and Lister 1982:60), this majolica is represented by only a single dubious sherd at Puerto Real. It is characterized by a clear cobalt-blue design on Sevilla White vessels and the chronological range is from about 1530 to 1650 (Deagan 1987).

Santo Domingo Blue on White. This is a decorated type of common grade Morisco Ware. Common throughout the 16th century the blue design motifs are described as "A hodgepodge of broad sweeping lines, dashes, random dots, squiggles, and lobed and wavy lines" (Lister and Lister 1982:57). The forms excavated at Puerto Real were platos and escudillas.

Yayal Blue on White. Fairly common at Locus 19, this type is represented by 70 sherds. It is another

type which has a Columbia Plain-like paste, enamel, and surface finish. Its simple design elements consist of blue bands in concentric circles on the interior of the vessel. A crude central medallion design is sometimes also included (Deagan 1987). The plato form was most common at Locus 19 although some escudilla fragments were noted.

White Majolica. This category consists mainly of small fragments of majolica. It was difficult to assign them to any plain majolica type (e.g. Sevilla White, Faenza White) since the possibility exists that the small specimen was simply a plain fragment from a blue on white or polychrome vessel.

UID Majolica. Next to Columbia Plain, this was the most numerous category accounting for five percent of all majolicas. This category includes blue on white, blue on blue, and polychrome majolicas that could not be identified at the present time.

Santa Elena Green and White. Common at Locus 19, this type has been identified at the site of Santa Elena in South Carolina and appears to date to the second half of the 16th century. It is described as a "highbread <sic> majolica with a green lead-glazed exterior and a white tin glazed interior" (Skowronek 1987:8). Lesser forms at Locus 19 seem to be large bowls.

Puerto Real Green and Green. This majolica warrants a new type designation. It is a thick-bodied, has a pinkish paste with a dark green tin glazed exterior and a lighter olive green lead glazed interior. Vessel forms appear to be large bowls.

Group 2 - Utilitarian Wares

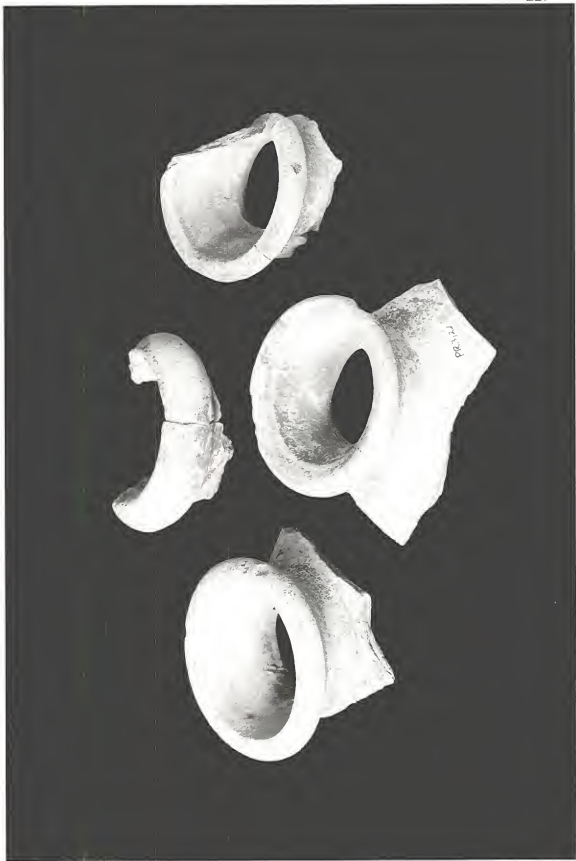
This group of ceramics includes those types that, as the category title implies, are primarily functional rather than decorative. Utilitarian group ceramics serve as storage vessels and are used in food preparation activities.

El Morro. First defined Hale Smith (1962:68-69), this type was redefined by Deagan (1976) but the term seems to be used only by Florida-trained researchers, others referring to it as lead-glazed coarse earthenware. This thin lead glazed coarse earthenware is distinctive in its poorly smoothed, granular surface (Deagan 1987). The glaze was often incompletely applied and "varies in color from a pale yellow-orange to a dark brown or olive green" (Willis 1976: 128). The limited use of the term for this ceramic makes the assignment of the chronological range difficult although reports of the type span three centuries from the 16th to the 18th century (Deagan 1987). Forms recovered from Puerto Real include platos and small bowls.

Green Bacin/Green Lebrillo. This type includes a variety of large utilitarian forms of which the Bacin and Lebrillo are most common. It has paste close to majolica in texture, is covered with a heavy clear dark green matte glaze, and seems confined to the 16th century in the Caribbean (Goggin 1968:226; Deagan 1987). It is fairly common at Puerto Real and is represented at Locus 19 by over 300 sherds including several large basin rims.

Olive Jar. The most numerous of utilitarian ceramics at Locus 19, over 8,000 sherds of olive jar were recovered, accounting for 63 percent of this category. The majority of the sherds recovered have been classified as early style. This style was defined by Goggin (1960:8-11) as having a distinctively shaped globular body, a raised, everted mouth and attached handles. The exterior surface was often covered by a white slip and the interior often glazed in some shade of green. Goggin dates this style from 1493 to approximately 1575. The olive jar rims from Locus 19 are characteristically early style (Figure 6-9) although two middle style necks were recovered from late period proveniences. Skowronek (1987:12-13) indicates that the "middle style" olive jar may have been appearing as early as the mid-16th century. The discovery of these middle style sherds is important

Figure 6-9 Olive jar necks (middle style in upper center, FS# 3312)
Other FS# (left to right--3138, 3122, 3343)



since it represents solid evidence that this type was appearing before its commonly supposed terminus post quem.

Glazed olive jar accounts for 23 percent of all olive jars at Locus 19. The color of this lead glaze was usually green or brownish-yellow. An interesting deviation from the usual glaze colors was the presence of twelve red-glazed olive jar fragments. This appeared to be the result of a clear lead glaze applied over a red slip, as some unglazed red slipped olive jar fragments were also recovered. All but one of these sherds were found in late period proveniences.

Spanish Storage Jar. This type of ceramic is defined by vessel form rather than by characteristics of paste or surface treatment. It has an olive jar-type paste and has been identified in jarro and basin forms (Deagan 1987). At Locus 19 this type is, no doubt, underrepresented since only flat bottomed basal sherds could be confidently placed in this type. Like olive jar, Spanish storage jar also often had an interior green glaze.

Redware. A difficult ware to categorize, this type is found at Locus 19 in both utilitarian and special function tableware forms. Deagan (1987) defines it as being "characterized by an orange or brick-red earthenware paste...uniform color on

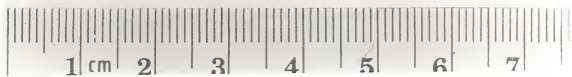
both surfaces and through the core of the sherds." Forms recovered at Puerto Real varied from thick large bowls to thin, delicate, small jarros, pichels, and bowls. Several of the sherds were incised with wavy lines, which Deagan (1987) reports as being found on 16th century specimens. It is difficult, at this time, to determine a time range or place of origin since the New World potters were turning out redwares by the late 16th century (Deagan 1987) with production continuing through the 18th century.

Unidentified Coarse Earthenwares. A great many sherds (30 percent) could not be identified any further than this general heading. Ceramics in this category have a soft, low fired paste exhibiting high porosity (Deagan 1987). Specimens were sometimes lead-glazed with honey, brown, green and red being the usual colors of the glaze. Vessel forms tended to overlap the tablewares category including platos and small bowls as well as large utilitarian vessels.

Group 3 - European Tablewares

This category of ceramics consists of tablewares of a non-hispanic origin. Poorly represented, the entire category consists of only slightly over 200 sherds or less than one percent of the total ceramic assemblage. Considering that Puerto Real was disbanded because of its traffic with non-Hispanic smugglers one

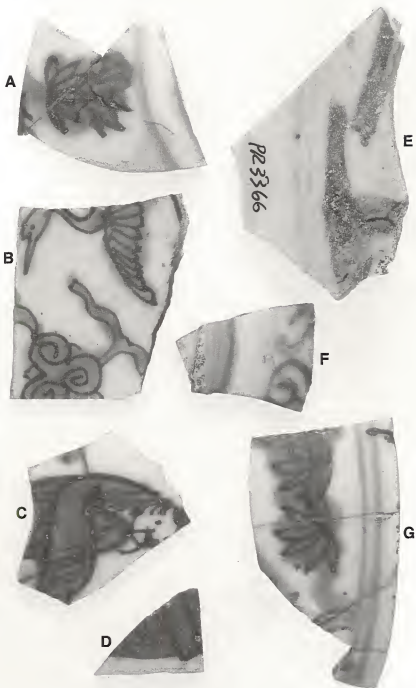
Figure 6-10 Cologne stoneware, FS# 3401



might have expected that many of the smuggled goods to have been ceramics. This may not have been the case, Andrews (1978:182) states that textiles were the chief trade item of the French smugglers. Perhaps the other smugglers dealt primarily in perishables as well.

Cologne Stoneware. This ware was named for the city in which these wares were produced. This European ceramic is described as a "grey-bodied stoneware coated with an iron oxide slip that broke into a brown mottle when fired in a salt glaze kiln" (Noel-Hume 1970:55). According to Noel-Hume, the earliest examples date to 1550 making it a good temporal marker at Locus 19.

Porcelain. Oriental porcelain was not available in the Caribbean until at least 1550 and then only through Portuguese corsairs. It was not until the Manila Galleon trade in 1573 that Spain began supplying her colonies with Chinese porcelain (Deagan 1987). All 16th century porcelains in the New World were produced during the Ming Dynasty (1522-1643) in China. Characteristic of this ware is, "A rather unctuous glaze of a distinct bluish green tinge. It's decoration is...of a deep warm blue of violet tone" (Aga-Oglu 1956:92). Most of the sherds recovered at Puerto Real are from small bowls or cups (Figure 6-11). Considering the difficulties one must have had in obtaining the pieces there, is a surprising amount of



porcelain at Locus 19; 45 fragments. Since Puerto Real was abandoned a scant five years after the commencement of the Manila Galleon trade, it seems far more likely that Portuguese smugglers were responsible for the relatively large quantity of porcelain scattered across Locus 19.

Non-Hispanic Tin Enameled Wares. Very little of these wares have been recovered at Puerto Real and these are small sherds. In England and the Netherlands tin-enameled ceramics are known as delft. Similarly, tin-enameled ceramics produced in France are known as faience. Their identification at Puerto Real is difficult in that all comparative specimens dated to the 16th Century or later. There are no contemporary French or English sites in the New World to compare with Puerto Real. Also, the fragments of these supposed non-Hispanic tin-enameled wares were very fragmentary and lacked any design elements. For these reasons the identification of Delft and/or Faience at Puerto Real is tentative.

Group 20 - Hispanic Tablewares (non-majolica)

This group includes those tablewares produced in Spain or her colonies that are not majolicas.

Feldspar-Inlaid Redware. First described by Charles Fairbanks (1966), this type is a typical thin redware decorated with white feldspar chips. This ware

is common at Locus 19 consisting of over 250 sherds. An interesting variant of this type is a feldspar decorated type with a micaceous paste. Another variant is a feldspar-tempered ware of unknown form or function. Deagan (1987) suggests, "that in the circum-Caribbean area Feldspar-Inlaid Redware dates from before 1550 until the end of the 16th century (ca. 1530-1600)." Vessel forms included small bowls.

Orange Micaceous Ware. This type accounts for 49 percent of the Group 20 assemblage (806 sherds). It has an orange paste with flecks of mica in the temper. Vessel forms are reported as generally small, in taza, pocillo, and plato forms (Deagan 1987). This is also the case at Locus 19.

Melado. This type has been called honey-colored /Seville ware (Willis 1984) and honey-colored ware (Goggin 1968, McEwan 1983). Deagan (1987) describes it as having a cream to terra cotta-colored paste covered with a honey colored opaque lead glaze. It is distinct from other similarly colored wares by its opacity and fine paste. Vessel forms at Locus 19 are generally platos and escudillas. Goggin (1968:227) places the chronological range of this ceramic of between 1493 and 1550.

Group 4 - Colono and Aboriginal Ceramics

Descriptions of the ceramics in this category are taken from Smith (1986:49-55). Smith's thesis represents the definitive work on non-European coarse earthenwares at Locus 19.

Meillac. This is an aboriginal form characterized by fine-grained temper, relatively thin walls (3-7 mm), and a polished gray or red surface. Designs, when present, include incised cross-hatching and oblique parallel lines; vessel forms are usually round bowls or boat-shaped bowls.

Carrier. This is another aboriginal type generally thought to postdate Meillac although the Puerto Real research suggests some degree of both prehistoric and historic overlap between the two types. Carrier has coarser temper, thicker walls (7-9 mm), and a more highly polished grayish-brown surface. Incised designs are commonly curved and often end with circular punctuations. Adornos (Bat-shaped forms are common) are often applied to the shoulders of the bowl or jar forms.

Christophe Plain. These simple bowl-shaped ceramics were previously referred to as colono ware (Willis 1984), because they resembled neither Meillac or Carrier ceramics (Figure 6-12). Willis (1984:169) used the term, Colono ware, to

Figure 6-12 Christophe Plain



designate its supposed hybrid property, the result of European contact with aboriginal populations. . . . In addition to this Colono-Indian hybrid, several authors, most notably Leland Ferguson (1980:14-28), have suggested the possibility of a second hybrid type resulting from the European-African slave contact situation.

Smith defines this new type as, "Measuring up to 19 mm in thickness, with a paste characterized by abundant quartzite inclusions of up to 1 cm in diameter, the function of these bowls appears to have been that of a cooking pot, since a large percentage of the sherds are sooted" (1986:54).

Red Slipped. Smith (1986) distinguishes between two types of red slipped pottery at Puerto Real. One type of red slipped is extremely rare while the other is far more numerous and increases in popularity through time. The cultural affiliation of the first type is definitely aboriginal while the affiliation of the second type is uncertain, though Smith suspects it is European. He describes this type as "thin walled (3-6 mm) and well-smoothed, with a very fine-grained texture. Vessels appear in small jar and/or bottle forms and show no signs of having been made on a wheel" (Smith 1986:55). More formal analysis (e.g. compositional) is necessary to determine where these wares originated. Of the red-slipped pottery listed in Table 6-6 the vast majority are of the second type.

Unidentified Plain Pottery. Plain group 4 ceramics that did not fit in the above classifications were put into this category. The rationale behind this category was to "avoid the error of assuming that all 'non-traditional' Meillac and Carrier sherds were Christophe Plain" (Smith 1986:55).

Unidentified Decorated Ware. A relatively uncommon type, these ceramics possess design elements distinct from Meillac or Carrier types.

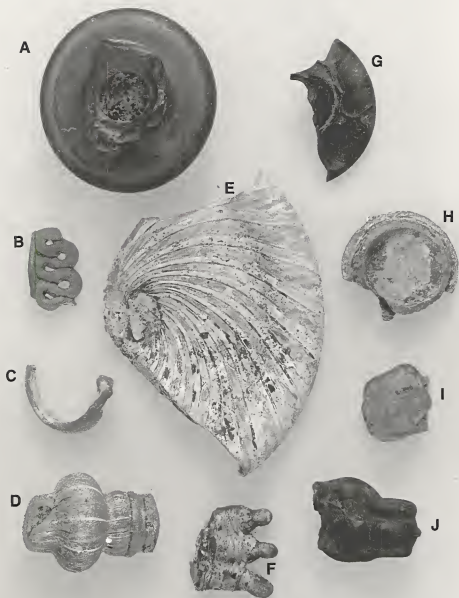
Group 5 - Kitchen Artifacts

As the title suggests, items in this group are associated with food handling, preparation, or consumption activities. This includes all glass except window glass and those types of glass associated with personal possessions (i.e. perfume bottles and watch crystals). All tablewares except ceramics, which are grouped separately, are in this category.

Glass. Glass of all types was very common at Locus 19 totalling well over 1000 fragments. A variety of vessel forms is represented, most of which are generally small and delicate bottles, decanters (three glass stoppers were recovered) and vials although stemmed goblets are present. Although most of the glass recovered was clear, a variety of colors were found as well, these include: aqua, blue, several shades of green, purple, opaque red, yellow, and

Figure 6-13 Glass artifacts

- A--goblet stem fragment, green, FS# 3113
- B--looped applique, clear, FS# 3290
- C--handle fragment, clear, FS# 3108
- D--goblet stem fragment, clear, white stripes, FS# 3189
- E--goblet base, clear, white stripes, FS# 3126
- F--gilt-edged applique, heavily patinated, FS# 3299
- G--base fragment, red and blue mottled, FS# 3226
- H--vial base(?), clear, white stripes, FS# 3132
- I--rose-shaped applique, clear, white stripes, FS# 3289
- J--handle fragment, red, FS# 3341



polychrome (see Table 6-7 for counts and percentages). The polychrome pieces are an aesthetically pleasing swirl of red and blue. The glassware was often molded into different decorative shapes, some had small glass appliques. Some of the clear glass had been etched but the fragments were too small to discern the nature of the design. Barber (1917:5) claims that etched glass was of Italian art or influence. The most decorative of the glassware is, undoubtedly, the delicate Italian lattice glass (Barber 1917:6). Two varieties are present at Locus 19: Clear with opaque, white ribbon stripes, and navy blue with white ribbon stripes (Figure 6-13).

Knives. Two general types of iron knives were recovered from Locus 19: a sharp carving knife with a riveted bone or wood handle, and a one-piece blunt end table knife.

Non-Hispanic Items. Three unusual items in this group's assemblage are a stone metate fragment and two manos. These items were most likely used for the processing of maize into flour. The natives of Hispaniola primarily boiled their corn so would not have used manos or metates for this purpose. The presence of these artifacts suggests a local trade with the mainland. Wheat did not grow well on the islands and cassava was used to feed the slaves and as a ship's

store, but was not well-liked by the colonists (Ewen 1985). Corn was an acceptable substitute and available from the mainland. The presence of 31 fragments of ceramic cassava griddle, discussed by Smith (1986:55), suggests that cassava was being consumed by someone at Locus 19.

Group 6 - Structural Hardware

This category consists of artifacts associated with standing structures. Window glass belongs in this group as opposed to Group 5 - Kitchen items. Note that brass tacks, associated primarily with furniture, are included with Group 13 - Furniture Hardware.

Spikes, Nails, and Tacks. These artifacts are wrought iron and distinguished on the basis of length. A spike is defined here as being 8 cm or more in length, a tack is less than 2 cm in length. The fact that the overwhelming number of these artifacts were found in Late Period proveniences (see Table 6-8) lends further credence to the idea of the structure dating to this time period.

Door Hardware. These items consisted of hinges and locks. Both locks were of iron and in a poor state of preservation. One specimen did preserve its outside, boxlike, form. The hinges were of two types: staple and strap. The staple hinges were called cotter-key hinges by Willis (1984:181), which he

described as a "simple interlocking U-Hinge mechanism used on chests, windows, or doors."

Group 7 - Weaponry and Armor

Armor. Two types of personal body armor have been tentatively identified at Locus 19. Three pieces of plate armor were found. This type of armor was formed by overlapping iron plates attached to an underlying garment (Ffoulkes 1967:49). Five interlocking small iron rings may denote the presence of chain mail. However, the remains were so fragmentary that positive identification was not possible.

Weapons and Ammunition. There were very few artifacts in this category. Three small musket balls (varying between 1.2 - 1.7 cm in diameter) and one piece of lead shot were recovered. A possible iron spear point was identified. This latter artifact appears to have been reworked to form a pointed blade by hammering out the blade of a tanged file or rasp.

Group 8 - Clothing and Sewing Items

Sewing Items. Many metal artifacts associated with sewing were recovered at Locus 19. The most numerous were brass straight pins (see Figure 6-16). Other items include the remains of two pair of scissors, three thimbles, and a carved bone lace bobbin (Figure 6-14).

Figure 6-14 bone artifacts

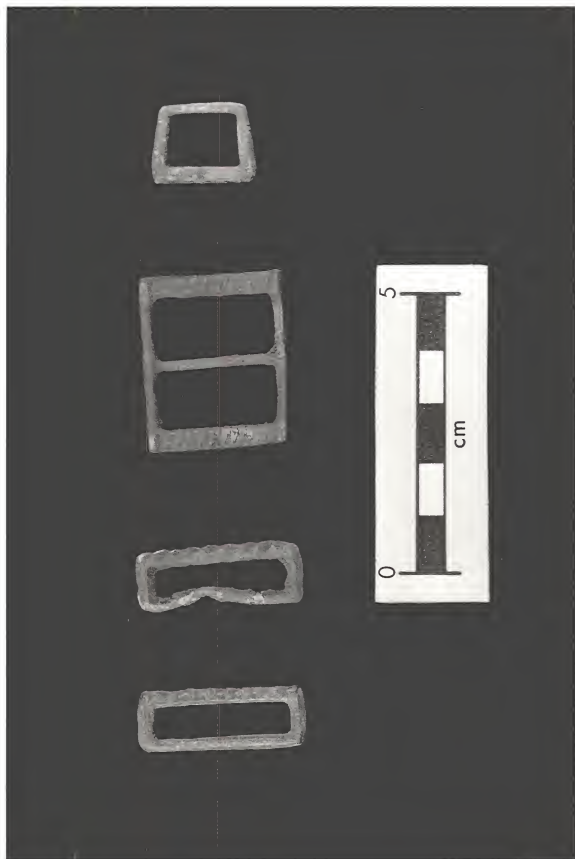
right--lace bobbin, FS# 3291

top left--carved bone, FS# 3334

bottom left--carved bone, FS# 3125



Figure 6-15 Brass buckles
Left to right FS# 3132, 3339, 3333, 3356



Clothing Items. Like many of today's fashions, the clothing of the 16th century consisted mainly of cloth and other materials that do not preserve well in the archaeological record. What do survive are the metallic artifacts that are functional or decorative accessories to clothing. Most prevalent at Locus 19 were aglets (copper alloy lacing tips). One of these aglets was made of silver (Figure 6-16). Less common fasteners were small shank buttons (made of pewter or silver) and hook and eye fasteners. A variety of brass and iron buckle types were also found (Figure 6-15).

Group 9 - Personal Items

Artifacts included in this category are those that, in a systemic context, are usually associated with an individual. That is, items that persons would carry with themselves on a regular basis, or that others would identify with that particular person.

Coins. These were by far the most numerous artifact in this group at Locus 19 and, indeed, ubiquitous throughout the site of Puerto Real. Two denominations of coins were found, 2 maravedi and 4 maravedi pieces (Figure 6-17). These are of the so-called "Santo Domingo type". According to Nesmith, "they had been authorized for the island by Ferdinand on December 20, 1505, and again by Johanna on May 10,

Figure 6-16 Straight pins and aglets

A--brass tacks

B--brass chain links

C--brass sheet fragment

D--silver aglet

E--brass straight pins

F--brass aglets



Figure 6-17 4 maravedi coins

1531. They were struck under contract at the mint of Seville or of Burgos, possibly at both" (1955:40). All identifiable coins were of this type.

Jewelry. Only small or broken fragments of jewelry were found. A piece of a jet ring was one of two articles of jewelry found at Locus 19. Interesting enough, jet rings were among the articles of jewelry owned by Charles V's mother, Joanna the Mad (Muller 1972:100). The other artifact was a very fine pendant that may have been part of a necklace (Figure 6-18). Crafted into the shape of a unicorn, this item was made of brass or some other copper alloy and then covered with a layer of gold leaf. Muller (1972:27) states that zoomorphic forms were popular in pendants during the 16th century.

Beads. These are included in this category rather than in Group 8 because they are large and probably were worn in strings around the neck rather than attached to clothing. There are a variety of types and colors of beads represented at Locus 19 illustrated in Figure 6-19. Most prevalent were dark blue cane beads with white stripes followed closely faceted chevron beads and several different types of wire wound beads. Unusual types included; a stone bead, a hexagonal shaped carnelian bead, a crumb bead, and beads made from shell and clay.

Figure 6-18 Unicorn pendant
FS# 3148, 2 cm in length



Figure 6-19 Bead types from Locus 19

A--red, crumb bead, FS# 3305
B--beige, clay, FS# 3305
C--orange, glass, FS# 3138
D--orange, carnelian, FS# 3154
E--orange, glass, FS# 3165
F--blue, 4 white stripes, glass, FS# 3165
G--blue, 4 white stripes, glass, FS# 3302
H--blue, 4 white stripes, glass, FS# 3340
I--clear, glass, FS# 3293
J--blue/black, 4 white stripes, FS# 3175
K--bone, FS# 3377
L--white and green, stone, FS# 3334
M--red, white, blue, faceted chevron, glass, FS# 3385
N--red, white, blue, faceted chevron, glass, FS# 3292
O--red, white, blue, faceted chevron, glass, FS# 3323
P--red, white, blue, faceted chevron, glass, FS# 3328
Q--blue/black, 4 white stripes, FS# 3152
R--blue/black, 4 white stripes, FS# 3299
S--blue and white stripe, red core, glass, FS# 3108
T--blue and white stripe, red core, glass, FS# 3403
U--blue and white stripe, red core, glass, FS# 3098
V--blue and white stripe, red core, glass, FS# 3369
W--blue and white stripe, red core, glass, FS# 3370



Book Hardware. Records hint that there may have been books present at Puerto Real. Lyon (1981) notes:

One of the more intriguing items is that in the lawsuit depositions, when the pilot Juan Rabero, a citizen of Puerto Real, says that he knows of the antiquity of the city because he has read it many times in the Cronica... this was probably the work of Oviedo y Valdes, Historia General Y Natural de las Indias, and indicates that there were some literate people, and doubtless books, in the town.

Excavations at Locus 19 confirm this supposition with the recovery of what appear to be several ornate brass and enamel book clasps (Figure 6-20). It is possible that the large clasps may have served some other purpose as they appear larger than those usually found on books of the period (cf. Penney 1967). Willis (1984:187-192) also found these items at Building A.

Bells. Called "hawk bells," these large (4 cm in diameter), copper alloy, two-piece, spherical bells were a popular item in the early Indian trade. Willis (1984:Figure 59a) also suggests that they were used as horse ornaments.

Pipes. Three kaolin pipestems were recovered from late proveniences at Locus 19 and may represent a later disturbance by the French since the Spanish are known to have not used kaolin pipes extensively until the 18th century (Deagan 1983:246).

Figure 6-20 Decorative clasps and hardware

A--enameled clasp, FS# 3127

B--brass clasp, FS# 3165

C--brass clasp, FS# 3123

D--brass and iron buckle, FS# 3108

E--brass furniture escutcheon, FS# 3132

F--enameled clasp, FS# 3157



Other Personal Objects. Two keys and a blade from a pocket type of knife were discovered near the structure at Locus 19. Also included in this category were fragments of lead seals. These probably represent seals on bales of goods rather than any individual personal seal. It is unfortunate that any stamps or marks on these seals had been obscured prior to recovery.

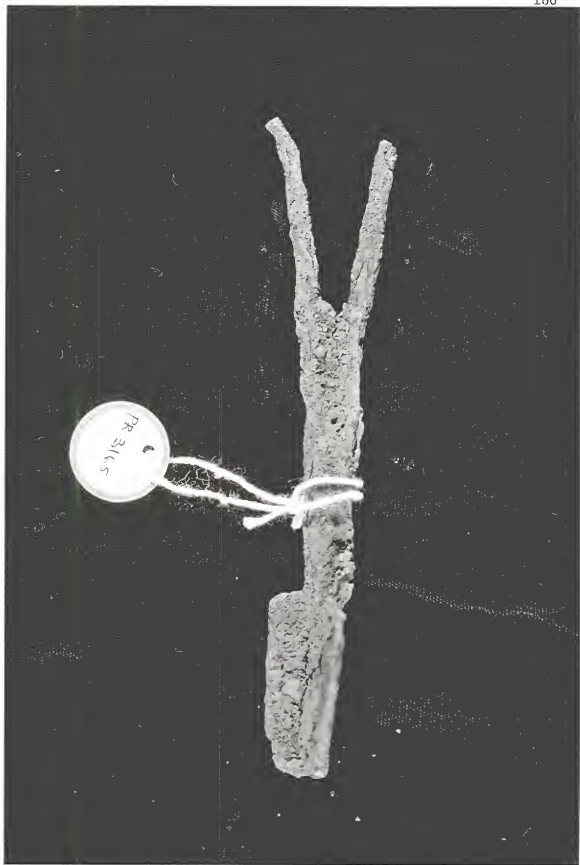
Group 10 - Activity Related Items

This became, essentially, a catch-all category in this study that accounted for items inappropriate to other categories. As the title suggests those items are associated with various activities. A selection of the identifiable items will be discussed below.

Candle Holder. Made of a copper alloy, this simple item consisted of a double-disk base stabilizing the tube holding a candle. Other examples of this are located in the Hodge's collection, Limbe, Haiti and recovered from La Vega Vieja in the Dominican Republic (Deagan 1987: Personal Communication).

Candle Snuffer. Two of these unusual artifacts were found at Locus 19 (Figure 6-21). They resemble scissors with small perpendicular plates resting on the blades themselves. In this way the candle is extinguished and it's wick trimmed at the same time.

Figure 6-21 · Cardle snuffer
FS# 3165, 13 cm in length



Both the snuffers and the candleholder were found in Late Period proveniences.

Fishing Items. These artifacts consisted of six iron fish-hooks of varying sizes (between 2 and 3 cm). The discovery of these hooks indicate that the Spaniards were using lines to take fish as well as nets suggested by Willis (1984:193).

Jew's Harps/Guimbardes. These artifacts are typically iron, 4-5 cm in length, and U-shaped with a constricted opening. There is a small metal stub in the center of the basal curve, presumably where the resonating middle piece was attached (Figure 6-22). They closely resemble the Jew's harps described by Crane (1972:20).

The form of the instruments is in no way different from that of the modern ones; the Jew's harp may be the only instrument manufactured in Europe today in a form that has been unchanged for two-thousand years. . . . The early instruments are generally small, commonly about 5.0 x 2.5 cm or a little less in maximum dimensions. . . . The tongues, always of steel, have normally disintegrated, except for traces of rust at the point where they joined the frame.

Group 13 - Furniture Hardware

A small category in numbers and types of artifacts, it is composed primarily of brass tacks at Puerto Real (Figure 6-16). These would have served both a useful and decorative function when used to attach upholstery to furniture (cf. Eberlein 1925).

Figure 6-22 Jew's harps
Left to right FS# 3339, 3222

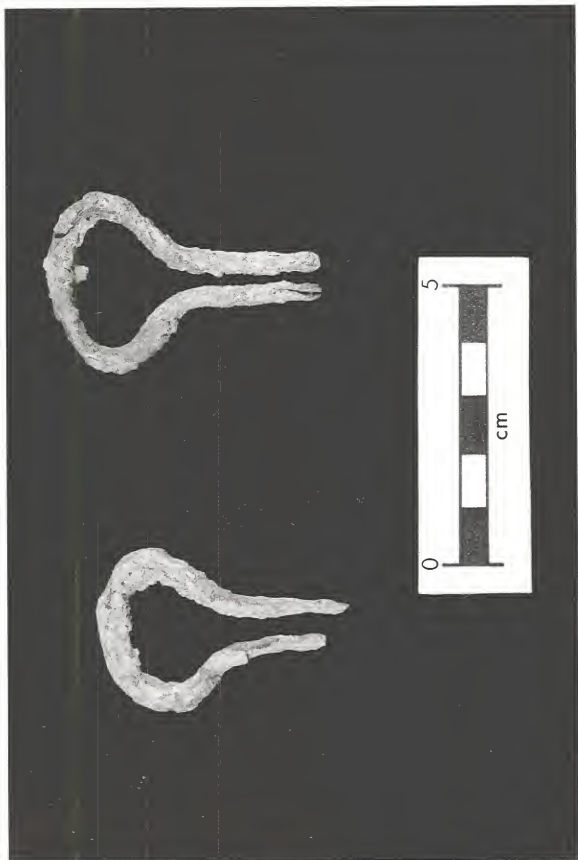
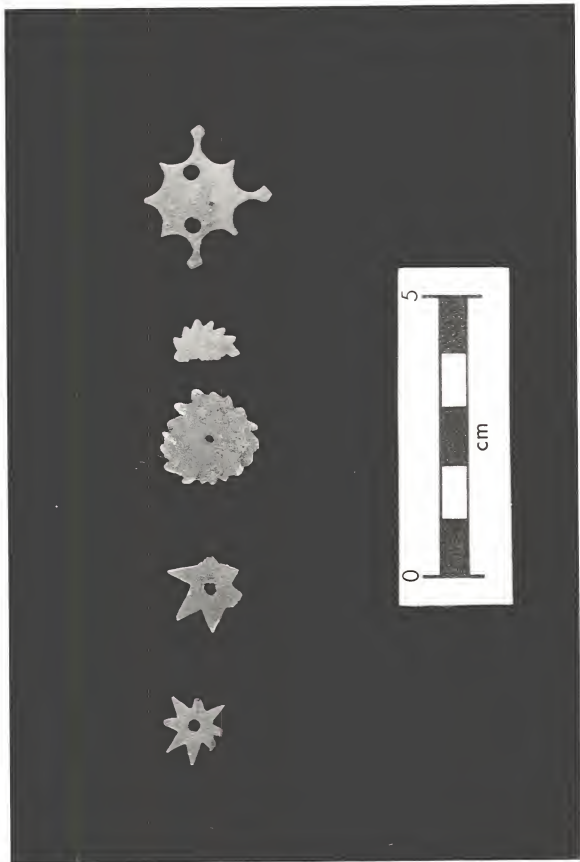


Figure 6-23 Brass stars

Left to right FS# 3327, 3297, 3354, 3354, 3334



Included in this category are two decorative escutcheons (see Figure 6-20) and a drawer-pull. Interesting artifacts which may belong in this category are the flat, brass, perforated, star-shaped objects (Figure 6-23). These have been variously interpreted as spur rowels or clothing ornaments and saddle ornaments (Radisch 1986). Radisch also suggests furniture decoration as a possibility. This seems to be more than just a possibility. The single hole in the center is suggestive of fastening by a single nail. Also comparisons with known furniture hardware (Eberlein 1925:131-136) show striking similarities. The paucity of artifacts in this category can be explained by the Spanish tendency toward little furniture use. What little furniture there was tended to be highly decorated (Eberlein 1925:viii).

Group 14 - Tools

Several different types of wood working tools were found at Locus 19. Three chisels were present as well as a wedge and a fragment of a file. Iron punches and awls, identical to modern forms, were possibly used for leather working at the site. An iron plumbob was recovered at Locus 19 from an Early Period context. One is tempted to speculate that it may have been used to assist in the layout and construction of the Late Period structure at the site. In any case, it is solid

iron, egg-shaped with a flattened base and a knob on top to which a line could be attached. It is six cm in length.

Group 15 - Toys and Games

This is a difficult category in that many manifestations of this category are not recognized as such in the archaeological record. Several "gaming disks" are reported from Locus 19. These disks are fashioned from various types of ceramics (Olive Jar, Columbia Plain, Christophe Plain) and were presumably used in some type of game, although James (1985) suggests their use as stoppers for olive jars. The whizzer, or Whirligig, is a ceramic disk with two holes in the middle. It is operated by running a loop of string through the holes, twisting the string then pulling it tight causing the disk to spin. Noel-Hume (1976: 321) states that, "the majority were made from uninformative bits of scrap metal...copper coins or datable fragments of fired pottery."

Group 16 - Harness and Tack

Undoubtedly many pieces that served as horse tack are not listed in this category simply because they have not been recognized as such. A horseshoe fragment recovered from the midden outside the structure is unmistakably in this category. Less certain are several iron rings and rods similar to what Willis

(1984: Figure 55) referred to horse tackle. Many small rectangular brass buckles were found. They measure 1.2 by 3.1 cm with one of the long sides decorated with a spiral twist. They are thought to have been associated with the harness trappings, but no documentation has been found to this effect.

Group 18 - Miscellaneous Substance

Most of the artifacts in this category are raw materials and will not be discussed in depth with three exceptions. Several amethyst crystals were found in archaeological contexts at Locus 19. Their function to the inhabitants, if any, is not known, though they were valued as gems in Europe (Muller 1972). A coprolite from a small animal, possibly a dog, was recovered. The exact species of the animal responsible for this ecofact awaits further investigation from a competent scatologist. Finally a small cake of blue powdery substance resembling indigo dye was found in the midden deposits. This, too, awaits the investigation of a competent specialist.

TABLE 6-2 MAJOLICAS

ARTIFACTS	PERIOD		
	EARLY	LATE	TOTAL
Bisque			
#	39	221	260
%	2.79	2.86	2.85
Caparra Blue			
#	8	7	15
%	.57	.09	.16
Columbia Plain			
#	1183	6490	7673
%	84.50	84.09	84.15
Columbia Plain Green			
#	33	153	186
%	2.36	1.98	2.04
Cuenca Tile			
#	1	0	1
%	.07	0	.01
Isabella Polychrome			
#	1	11	12
%	.07	.14	.13
La Vega Blue on White			
#	0	3	3
%	0	.04	.03
Ligurian Blue on Blue			
#	0	11	11
%	0	.14	.12
Lusterware			
#	0	1	1
%	0	.01	.01
Montelupo Polychrome			
#	0	9	9
%	0	.12	.10
Puerto Real Green and Green			
#	4	20	24
%	.29	.26	.26

TABLE 6-2 continued

ARTIFACTS	PERIOD		TOTAL
	EARLY	LATE	
Santa Elena Green and White			
#	9	36	45
%	.64	.47	.49
Sevilla Blue on Blue			
#	0	3	3
%	0	.04	.03
Sevilla Blue on White			
#	0	1	1
%	0	.01	.01
Santo Domingo Blue on White			
#	1	15	16
%	.07	.19	.17
Yayal Blue on White			
#	4	66	70
%	.29	.86	.77
White Majolica			
#	42	295	337
%	3.00	3.82	3.70
Polychrome Majolica			
#	17	102	119
%	1.21	1.32	1.31
UID Blue on White			
#	58	274	332
%	4.14	3.55	3.64
Total	1400	7718	9118

TABLE 6-3 UTILITARIAN CERAMICS

ARTIFACT	PERIOD		
	EARLY	LATE	TOTAL
El Morro			
#	1	2	3
%	.05	.02	.03
Green Bacin			
#	62	284	346
%	3.16	2.61	2.70
Lead-glazed Coarse Earthenware			
#	221	990	1211
%	11.26	9.11	9.44
Olive Jar			
#	733	5583	6316
%	37.34	51.36	49.22
Olive Jar, glazed			
#	392	1484	1876
%	19.97	13.65	14.61
Redware			
#	51	269	320
%	2.60	2.40	2.50
Spanish Storage Jar			
#	24	3	27
%	1.22	.03	.21
Spanish Storage Jar, glazed			
#	1	22	23
%	.05	.20	.18
UID Coarse Earthenware			
#	478	2233	2711
%	24.35	20.54	21.12
Total	1963	10870	12833

TABLE 6-4 EUROPEAN TABLEWARES

ARTIFACT	PERIOD		
	EARLY	LATE	TOTAL
Cologne Stoneware			
#	1	24	25
%	2.78	14.72	12.56
Delft			
#	1	4	5
%	2.78	2.45	2.51
Faience			
#	7	27	34
%	19.44	16.56	17.09
Lead-glazed Coarse Earthenware			
#	2	26	28
%	5.56	15.95	14.07
Ming porcelain			
#	0	45	45
%	0	27.61	22.61
UID Tin-enameled ware			
#	25	37	62
%	69.44	22.70	31.15
Total	36	163	199

TABLE 6-5 HISPANIC TABLEWARES (non-majolica)

ARTIFACT	PERIOD		
	EARLY	LATE	TOTAL
Feldspar Inlaid			
#	9	253	262
%	6.72	16.67	15.86
Melado			
#	125	459	584
%	93.28	30.24	35.35
Orange Micaceous			
#	0	806	806
%	0	53.09	48.79
Total	134	1518	1652

TABLE 6-6 COLONO AND ABORIGINAL CERAMICS

ARTIFACT	PERIOD		
	EARLY	LATE	TOTAL
UID Decorated			
#	19	89	108
%	.48	.53	.51
UID Plain			
#	1811	8648	10459
%	51.33	49.74	50.00
Carrier			
#	3	10	13
%	.09	.06	.06
Christophe Plain			
#	1319	6897	8216
%	37.39	39.65	39.27
Meillac			
#	46	99	145
%	1.30	.57	.69
Meillac-like			
#	9	6	15
%	.26	.03	.07
Red Slipped			
#	319	1638	1957
%	9.04	9.42	9.36
Total	3526	17387	20913

TABLE 6-7 KITCHEN ARTIFACTS

ARTIFACT	PERIOD		
	EARLY	LATE	TOTAL
Decanter top			
#	0	3	3
%	0	.29	.24
Glass, aqua			
#	3	19	22
%	1.30	1.83	1.74
Glass, blue			
#	4	26	30
%	1.73	2.51	2.37
Glass, clear			
#	129	439	568
%	55.41	42.04	44.48
Glass, green			
#	50	184	234
%	21.65	17.74	18.45
Glass, latticinio			
#	38	316	354
%	16.45	30.47	27.92
Glass, polychrome			
#	1	1	2
%	.43	.10	.16
Glass, purple			
#	1	0	1
%	.43	0	.08
Glass, red			
#	0	1	1
%	0	.10	.08
Glass, UID			
#	1	5	6
%	.43	.48	.47
Glass, yellow			
#	0	1	1
%	0	.10	.08

TABLE 6-7 continued

ARTIFACT	PERIOD		
	EARLY	LATE	TOTAL
Griddle			
#	2	29	31
%	.87	2.80	2.44
Handle			
#	2	0	2
%	.87	0	.16
Knife			
#	1	5	6
%	.43	.48	.47
Mano			
#	0	2	2
%	0	.19	.16
Metate			
#	0	1	1
%	0	.10	.08
Total	232	1029	1261

TABLE 6-8 STRUCTURAL HARDWARE

ARTIFACT	PERIOD		TOTAL
	EARLY	LATE	
Bolt			
#	1	1	2
%	.45	.09	.15
Door lock			
#	0	2	2
%	0	.18	.15
Hinge			
#	0	3	3
%	0	.27	.23
Nail, wrought			
#	199	1008	1204
%	90.05	92.31	91.70
Spike, wrought			
#	19	56	75
%	8.60	5.13	5.71
Staple			
#	0	1	1
%	0	.09	.07
Tack, wrought			
#	2	18	20
%	.90	1.65	1.52
Washer			
#	0	3	3
%	0	.27	.23
Total	221	1092	1313

TABLE 6-9 WEAPONRY AND ARMOR

ARTIFACT	PERIOD		TOTAL
	EARLY	LATE	
Lead shot			
#	0	1	1
%	0	9.09	7.69
Brigandine plate			
#	0	3	3
%	0	27.27	23.08
Chain mail			
#	0	5	5
%	0	45.45	38.46
Musket ball			
#	1	2	3
%	50.00	18.18	23.08
Spear			
#	1	0	1
%	50.00	0	7.69
Total	2	11	13

TABLE 6-10 CLOTHING AND SEWING ITEMS

ARTIFACT	PERIOD		TOTAL
	EARLY	LATE	
Aglet			
#	38	125	163
¢	32.76	42.09	39.47
Lace bobbin			
#	0	1	1
¢	0	.34	.24
Buckle			
#	1	9	10
¢	.86	3.03	2.42
Button, brass			
#	0	1	1
¢	0	.34	.24
Button, pewter			
#	0	1	1
¢	0	.34	.24
Button, silver			
#	0	3	3
¢	0	1.01	.73
Clasp			
#	1	0	1
¢	.86	0	.24
Fastener			
#	0	2	2
¢	0	.67	.48
Hook & eye			
#	0	1	1
¢	0	.34	.24
Straight pin, brass			
#	75	148	223
¢	64.66	49.83	54.00

TABLE 6-10 continued

ARTIFACT	PERIOD		TOTAL
	EARLY	LATE	
Straight pin, iron			
#	0	1	1
%	0	.34	.24
Scissors			
#	1	1	2
%	.86	.34	.48
Thimble			
#	0	3	3
%	0	1.01	.73
Total	116	296	412

TABLE 6-11 PERSONAL ITEMS

ARTIFACT	PERIOD		TOTAL
	EARLY	LATE	
Bead, cane			
#	1	9	10
%	4.55	5.33	5.18
Bead, carnelian			
#	0	1	1
%	0	.59	.52
Bead, ceramic			
#	0	2	2
%	0	1.18	1.04
Bead, chevron			
#	1	7	8
%	4.55	4.14	4.15
Bead, crumb			
#	0	1	1
%	0	.59	.52
Bead, shell			
#	0	1	1
%	0	.59	.52
Bead, stone			
#	0	1	1
%	0	.59	.52
Bead, wire-wound			
#	1	11	12
%	4.55	5.92	5.70
Hawkbell			
#	0	3	3
%	0	1.78	1.55
Book hardware			
#	3	2	5
%	13.64	1.18	2.59
Coin			
#	15	120	135
%	68.18	71.01	69.95

TABLE 6-11 continued

ARTIFACT	PERIOD		TOTAL
	EARLY	LATE	
Ring, jet			
#	1	0	1
%	4.55	0	.52
Key			
#	0	2	2
%	0	1.18	1.04
Knife, pocket			
#	0	1	1
%	0	.59	.52
Pendant			
#	0	1	1
%	0	.59	.52
Pipestem, kaolin			
#	0	3	3
%	0	1.79	1.57
Seal			
#	0	4	4
%	0	2.37	2.07
Total	22	168	191

TABLE 6-12 ACTIVITY RELATED ITEMS

ARTIFACTS	PERIOD		TOTAL
	EARLY	LATE	
Candle holder			
#	0	1	1
%	0	2.13	1.47
Chain			
#	0	5	5
%	0	10.64	7.35
Crucible			
#	1	1	2
%	4.76	2.13	2.94
Fish hook			
#	0	6	6
%	0	12.77	8.82
Grater			
#	9	6	15
%	42.86	12.77	22.06
Hook			
#	3	11	14
%	14.29	23.40	20.59
Hoop			
#	3	0	3
%	14.29	0	4.41
Jew's harp			
#	5	15	20
%	23.81	31.91	29.41
Snuffer			
#	0	2	2
%	0	4.26	2.94
Total	16	32	48

TABLE 6-13 FURNITURE HARDWARE

ARTIFACT	PERIOD		TOTAL
	EARLY	LATE	
Tack, brass			
#	0	12	12
%	0	70.59	57.14
Escutcheon			
#	0	2	2
%	0	11.76	9.52
Furniture hardware			
#	4	3	7
%	100.00	17.64	33.33
Total	4	17	21

TABLE 6-14 TOOLS

ARTIFACT	PERIODS		
	EARLY	LATE	TOTAL
Awl			
#	0	9	9
%	0	50.00	45.00
Chisel			
#	0	3	3
%	0	16.67	15.00
File			
#	0	1	1
%	0	5.56	5.00
Plumb bob			
#	1	0	1
%	50.00	0	5.00
Punch			
#	1	2	3
%	50.00	11.11	15.00
UID, tool			
#	0	2	2
%	0	11.11	10.00
Wedge			
#	0	1	1
%	0	5.56	5.00
Total	2	18	20

TABLE 6-15 TOYS AND GAMES

ARTIFACT	PERIOD		TOTAL
	EARLY	LATE	
Gaming disk			
#	1	8	9
%	50.00	50.00	81.82
Marble			
#	0	1	1
%	0	11.11	9.09
Whizzer			
#	1	0	1
%	50.00	0	9.09
Total	2	9	11

TABLE 6-16 HARNESS AND TACK

ARTIFACT	PERIOD		
	EARLY	LATE	TOTAL
Buckle			
#	1	8	9
%	8.33	42.11	29.03
Horse hardware			
#	3	2	5
%	25.00	10.53	16.13
Horse shoe			
#	1	0	1
%	8.33	0	3.20
Ring			
#	7	9	16
%	58.33	47.37	51.61
Total	12	19	31

Faunal Assemblage

A relatively wide variety of species are represented at Locus 19. These are listed by class in Table 6-17. The fauna are quantified in taxonomic order (Tables 6-18 through 6-22), but for interpretive purposes they can be divided into two groups; native and introduced species. These categories correspond to, with a couple of exceptions, wild vs. domestic species. The introduced species include: dogs, cats, swine, cattle, sheep/goats, and chickens. The turtles, fish, and shellfish are all native species. It should be noted that all the large and medium mammal bone probably represent introduced species since no mammals of that size were native to Hispaniola. Large mammal probably corresponds with cattle but without positive identification, zooarchaeological procedures require that such specimens be placed in this category. The specimens of family Anatidae (swans, geese, and ducks) are of uncertain affiliation. In these cases the species in question could have been introduced ducks or simply migratory waterfowl.

TABLE 6-17 SPECIES PRESENT

<u>Scientific name</u>	<u>Common name</u>
MAMMALS	
Cricetidae	rodent
<u>Canis familiaris</u>	dog
<u>Felis domesticus</u>	cat
<u>Sus scrofa</u>	pig
<u>Bos taurus</u>	cow
<u>Neofiber alleni</u>	round-tail muskrat
Caprinae	goat/sheep
BIRDS	
Anatidae	swans, geese ducks
<u>Gallus gallus</u>	chicken
REPTILES	
Testudines	turtles
<u>Pseudemys</u> sp.	pond turtle
Chelonidae	sea turtle
FISH	
Osteichthyes	bony fishes
<u>Megalops atlanticus</u>	tarpon
<u>Elops saurus</u>	ladyfish
<u>Albula vulpes</u>	bonefish
<u>Centropomus undecimalis</u>	snook
<u>Epinephelus</u> sp.	grouper
<u>Mycteroperca</u> sp.	grouper
<u>Caranx hippos</u>	Creville jack
<u>Lutjanus</u> sp.	snapper
Gerreidae	mojarra
<u>Haemulon</u> sp.	grunts
Sparidae	porgies
Sciaenidae	drums
Pomacathidae	angelfishes
<u>Mugil</u> sp.	mullet
<u>Gobiomorus dormitor</u>	bigmouth sleeper

TABLE 6-17 Continued

<u>Scientific name</u>	<u>Common name</u>
INVERTEBRATES	
Decapoda	crab
Brachyura	true crab
Cardisoma sp.	land crab
<u>Cittarium pica</u>	W. I. top-shell
<u>Nertina virginea</u>	virgin nerite
<u>Strombus gigas</u>	queen conch
Arcidae	ark
<u>Brachidontes exustus</u>	scorched mussel
<u>Mytilopsis cf. leucopheta</u>	false mussel
<u>Isoognomon atlatus</u>	flat tree oyster
<u>Crassostrea virginica</u>	eastern oyster
<u>Codakia costata</u>	costate lucine
<u>Codakia orbicularis</u>	tiger lucine
<u>Lucine pectinata</u>	thick lucina
<u>Chama sp.</u>	jewel box
<u>Tellina fausta</u>	faust tellin
<u>Donax denticulata</u>	donax
<u>Anomalocardia denticulata</u>	W.I. pointed venus
<u>Chione cancellata</u>	cross-barred venus

The Cricetids, however, are an interesting anomaly. One specimen has been positively identified as Neofiber alleni (round-tailed muskrat), which is native to south Florida and has not been previously reported from Hispaniola (Charles Woods: personal communication). Its presence in an early context at Puerto Real could be explained by intra-Caribbean trade patterns. It was during the first half of the 16th century that the Bahamas were being depopulated by slave raids (Sauer 1966:159). It seems likely, by its very proximity, that the southern coast of Florida was also a target of these slavers. Perhaps the muskrat was taken (possibly for its pelt) during such a raid and transported to Puerto Real, which was one of the main ports servicing the slave trade. Whatever its route, the presence of this muskrat at Puerto Real demonstrates early contact between Hispaniola and Florida.

In this chapter only the basic quantifications of the faunal data are presented. This refers to primary quantification data: species present, number of bone fragments, weight of bone fragments; and secondary quantification data: minimum numbers of individuals (MNI) and biomass estimations. They are also divided like the artifact assemblage, into early vs. late proveniences.

The minimum numbers of individuals for each species was calculated on the basis of the most numerous unique element of the species from a particular provenience. Such factors as age and size of the specimen were also taken into account. The biomass was determined using an allometric scaling technique based on skeletal mass. Underlying this technique is the premise that by using a straight line regression formula (Reitz 1974) skeletal weight can be correlated with body weight. The formula is:

$$\text{Log } Y = B (\text{Log } X) + \text{Log } A$$

Where: Y = Body weight in KG
X = Skeletal weight in KG
A = Y - Intercept
B = Slope

The class values for Log A and B have been determined for each taxa by researchers at the Florida State Museum. To simplify matters further Stephen Hale and Irvy Quitmeyer of the Florida State Museum have written a program for the Apple II series personal computer that performs the necessary calculations. Invertebrates are not yet included in those calculations.

The results of the biomass calculations are of interest. The five most important animals, in terms of biomass, at the site in descending order of importance were:

Early period: 1) Cattle; 2) Large Mammal, 3) Swine, 4) UID Mammal, 5) Pond Turtle.

Late period: 1) Large Mammal, 2) Mammal, 3) Cattle, 4) Swine, 5) Pond Turtle.

It is interesting to compare this to the minimum number of individuals. Since this is used only on identifiable species some change is to be expected, however there is quite a difference in the order of animals in both periods. Invertebrates were excluded since they were not included in the biomass comparisons.

Early period: 1) Pond Turtle, 2) Swine, 3) Cattle, 4) Chicken, 5) Bigmouth sleeper (fish).

Late period: 1) Pond Turtle, 2) Swine, 3) Chicken, 4) Cattle, 5) Mullet.

The following tables quantify the faunal data described above.

TABLE 6-18 MAMMALIAN FAUNA

TAXA PERIOD	#	WGT(g)	MNI	BIOMASS (kg)
Arteriodactyla				
Early	-	-	-	-
Late	51	390.3	-	5.65
<u>Bos taurus</u>				
E	165	9902.65	13	103.79
L	106	2730.3	7	32.55
<u>Canis familiaris</u>				
E	-	-	-	-
L	6	2.6	1	.06
Caprinae				
E	9	10.4	1	.22
L	3	8.15	2	.17
Cricetidae				
E	2	0.1	1	.003
L	-	-	-	-
<u>Felis sp.</u>				
E	1	0.9	1	.02
L	2	0.9	1	.02
UID Mammal, large				
E	1735	6038.9	-	66.51
L	2445	9430.6	-	99.33
UID Mammal, medium				
E	1	0.5	-	.01
L	15	8.0	-	.17
UID Mammal				
E	2420	1200.2	-	15.54
L	9214	4233.15	-	48.31
<u>Sus scrofa</u>				
E	307	2717.6	18	32.42
L	346	2075.6	9	25.43

TABLE 6-19 AVIAN FAUNA

TAXA PERIOD	#	WGT(g)	MNI	BIOMASS (kg)
Anatidae				
E	1	.7	1	.01
L	-	-	-	-
<u>Gallus gallus</u>				
E	54	75.45	8	1.04
L	37	26.10	8	.40
Galliformes				
E	-	-	-	-
L	4	3.05	-	.06
Aves				
E	90	26.9	-	.41
L	62	17.5	-	.28

TABLE 6-20 REPTILIAN FAUNA

TAXA PERIOD	#	WGT(g)	MNI	BIOMASS (kg)
Chelonidae				
E	-	-	-	-
L	2	8.8	1	.14
<u>Pseudemys sp.</u>				
E	876	1642.9	21	4.51
L	1315	1879.7	18	4.94
Testudines				
E	1202	569.5	-	2.22
L	2278	1193.9	-	3.64

TABLE 6-21 FISH

TAXA PERIOD	#	WGT(g)	MNI	BIOMASS (kg)
<u>Albula vulpes</u>				
E	-	-	-	-
L	1	.5	1	.02
<u>Carangidae</u>				
E	2	1.5	-	.05
L	-	-	-	-
<u>Caranx hippos</u>				
E	7	12.0	1	.35
L	-	-	-	-
<u>Centropomidae</u>				
E	-	-	-	-
L	1	.5	-	.02
<u>Centropomus sp.</u>				
E	24	10.1	6	.19
L	6	3.26	1	.08
<u>Centropomus undecimalis</u>				
E	-	-	-	-
L	4	2.5	3	.06
<u>Gerreidae</u>				
E	-	-	-	-
L	1	.23	1	.009
<u>Gobiomorus dormitor</u>				
E	25	8.7	8	.17
L	8	3.2	2	.08
<u>Haemulon sp.</u>				
E	1	.3	1	.01
L	-	-	-	-
<u>Lutjanus sp.</u>				
E	2	2.6	2	.06
L	6	1.38	1	.04
<u>Megalops atlanticus</u>				
E	1	1.1	1	.03
L	10	2.6	1	.06
<u>Mugil sp.</u>				
E	11	4.1	5	.09
L	5	2.29	3	.05
<u>Mycteroperca sp.</u>				
E	-	-	-	-
L	1	.23	1	.009
<u>Pomacanthidae</u>				
E	-	-	-	-
L	1	.2	-	.009

TABLE 6-21 continued

TAXA PERIOD	#	WGT(g)	MNI	BIOMASS (kg)
Sciaenidae				
E	1	.1	-	.007
L	-	-	-	-
Serranidae				
E	2	3.5	-	.08
L	3	.46	-	.02
Sparidae				
E	1	.8	-	.02
L	-	-	-	-
Osteichthyes				
E	178	42.0	-	.61
L	161	53.4	-	.74

TABLE 6-22 INVERTEBRATE FAUNA

TAXA PERIOD	#	WEIGHT(g)	MNI
<u>Anomalocardia brasiliiana</u>			
E	76	40.5	29
L	-	-	-
Arcidae			
E	1	1.5	-
L	-	-	-
<u>Balanus</u> sp.			
E	1	.18	1
L	-	-	-
Bivalvia			
E	195	53.37	-
L	5	1.0	-
<u>Brachidontes exustus</u>			
E	1	.3	1
L	-	-	-
Brachyura			
E	12	1.95	2
L	9	6.9	1
<u>Cardisoma</u> sp.			
E	4	6.1	1
L	4	4.3	2
<u>Chama</u> sp.			
E	1	2.1	1
L	-	-	-
<u>Chione cancellata</u>			
E	9	14.1	3
L	-	-	-
<u>Cittarium pica</u>			
E	1	158.2	1
L	-	-	-
<u>Codakia costata</u>			
E	6	3.2	1
L	-	-	-
<u>Codakia orbicularis</u>			
E	13	9.6	2
L	-	-	-
<u>Crassostrea virginica</u>			
E	145	231	12
L	-	-	-
Crustacea			
E	9	.7	-
L	3	.9	-

TABLE 6-22 continued

TAXA PERIOD	#	WEIGHT(g)	MNI
Decapoda			
E	75	20.17	-
L	5	.7	-
<u>Donax denticulata</u>			
E	1	.7	1
L	-	-	-
Gastropoda			
E	5	12.4	-
L	1	.8	-
Gecarcinidae			
E	8	3.1	-
L	-	-	-
<u>Isognomon alatus</u>			
E	61	26.05	3
L	-	-	-
<u>Lucina pectinata</u>			
E	13	23	3
L	-	-	-
Mollusca			
E	79	28.1	-
L	5	9.02	-
Mytilidae			
E	1	.1	-
L	-	-	-
<u>Mytilopsis cf. leucopheta</u>			
E	1	.5	-
L	-	-	-
<u>Neritina virginica</u>			
E	2	.7	2
L	-	-	-
<u>Ostreidae</u>			
E	-	-	-
L	3	3.68	-
<u>Strombus gigas</u>			
E	-	-	-
L	1	1243.2	1
<u>Strombus sp.</u>			
E	4	114.4	1
L	-	-	-
<u>Tellina fausta</u>			
E	1	1.4	1
L	-	-	-

CHAPTER VII RESULTS OF ANALYSES

An interpretation of the raw data presented in the preceeding chapter follows in terms of the test implications proposed in Chapter 4. A summary of the results of the tests and suggested avenues for future research follow in the final chapter.

Test 1

Food preparation activities, as represented in the archaeological assemblage should show a significant admixture of European and locally manufactured wares. In the initial stage of colonization it is expected that the locally available Taino Indian wares will have been used by the earliest settlers. It is furthermore expected that the nature of the locally manufactured items will have shifted from Indian to African influenced types through time.

An examination of the data reveals that 62% of the utilitarian wares (both Early and Late Periods combined) were of local origin with the remaining 38% being composed of Olive Jar, Green Bacin and other Hispanic wares. Clearly this demonstrates a

significant overall admixture of the two types of wares. Furthermore this ratio held through time. In the Early Period 64% of the utilitarian ceramics were locally made. This agreed closely with the 62% of the same ware category in the Late Period.

A close study of the Group 4 (colono and aboriginal) ceramics indicates that there is a shift in the nature of the locally manufactured ceramics through time. The recognized Indian ceramic traditions, Meillac and Carrier are never very common at Locus 19, accounting for less than 1% of the Group 4 assemblage. Easily the most numerous type is Unidentified Plain pottery which comprises 51% of the Early Period assemblage and 50% of the Late Period assemblage. Christophe Plain is the next most numerous accounting for 37% and 40% of the Early and Late Period Group 4 assemblages respectively.

Smith (1986) found the same sort of distribution in his analysis of three loci at Puerto Real. He interpreted this as a replacement of aboriginal wares through time with African-made ceramics. The shifts in ceramic types mirror the demographic changes occurring in the labor force at Puerto Real. As the Indian population declined it was replaced by imported African slaves. Smith, claims that the distribution of Group 4 ceramics,

offers strong support for the replacement of Indian tradition ceramics through time, a replacement which was primarily accomplished through African ceramic manufacture. The cultural and temporal affiliation of Unidentified Plain pottery is not clearly apparent. Results seem to suggest that, while a response to the ceramic needs of the entire Puerto Real community, Unidentified Plain pottery may be the product of both Indian and African manufacture during the period of population upheaval. (1986:101)

Given the ceramic evidence, the first test implication supports the hypothesis.

Test 2

Status related artifacts should be almost exclusively European in trade or manufacture. It is expected that the attempts by New World settlers to maintain an Iberian lifestyle, will be reflected in the use of articles from the Spanish empire in socially-visible areas of daily life. Socially-visible is the key term here, being that non visible artifacts (e.g. cookware) could hardly be expected to reflect the owner's status to others.

Status, as it is used in this work, refers to the individuals access to scarce resources that were desirable, but not easily obtainable. The higher the person's status, the greater the access to these desired, socially-visible products. The determination of status in Spain was not entirely economic, hereditary factors (limpieza de sangre) were also

involved. A workable definition of the Spanish hierarchical system would be the estate system of social stratification which is,

a hierarchic society the strata of which are rigidly separated by law and customs and often characterized by different hereditary relationship to land (as owners, tenants, or serfs). Though social status is generally hereditary, vertical social mobility is not altogether excluded. . . . Under the estate system, the individual's status or prestige was of paramount importance notwithstanding the permanence of economic differences.
(Morner 1967:7-8)

As mentioned previously in Chapter 2, there came to be a close correspondance between wealthy, converso merchants and prestigious, Old Christian hidalgos. Through carefully arranged marriages, the converso families were able to legitimize their status, while the hidalgos achieved the financial status befitting their station. So, although economic and social status were not exactly equated in 16th century Spain, there was a close enough correspondence to warrant the use of hard to obtain, socially items in the archaeological record to identify persons of high status. In the colonies, one's relative status was closely related with how well one could maintain the Spanish lifestyle.

There are a number of socially-visible areas where according to the hypothesis, we would expect to find Hispanic artifacts. The table of the Spanish colonist would be one such place. Following the hypothesis we

would expect to find tablewares composed primarily of majolicas or other Hispanic wares. This is, indeed, exactly the case. There are no locally-made ceramics in tableware forms (e.g. platos, escudillas, tazas). Such copy wares have been found in Spanish colonial contexts such as San Luis (Richard Vernon: Personal communication). Additionally, many high status marker artifacts were recovered. Expensive articles from Spain's imperial trade network, such as Italian latticino glass, and Cologne stoneware are not uncommon at Locus 19. These items were found in much smaller quantities at other locations in Puerto Real strengthening the presumption of the high status affiliation of Locus 19.

There is also evidence that a Spanish woman was resident at Locus 19. The presence of the beads, unicorn pendant, and a jet ring all suggest the existence of a feminine inhabitant. The additional evidence of lace tatting as an activity at the site (the lace bobbin described in Chapter 6) suggests that this woman was Hispanic rather than native. Although no list of women was found during the literature search (Lyon 1981) some Spanish women were certainly present at Puerto Real. The repartimiento of 1914 does indicate that of the 20 vecinos at Puerto Real, three had Castilian wives (Sauer 1966:199). Emigration of women

to the New World was not uncommon but tended to focus on established large towns. Prior to the discovery of New Spain, Santo Domingo was the chief destination of Spanish women, after discovery and settlement Peru and Mexico were the favored destinations (Boyd-Bowman 1976:596-599). Since a Spanish woman at a colonial outpost town such as Puerto Real would have been comparatively rare, her presence at Locus 19 would be expected at a high status household capable of supporting such a personage. It also seems likely given reproductive potentials that there would have been children at the site. The toy "whizzer" recovered from the site may have belonged to the resident's child.

In the area of clothing there is, as expected, strong retention of European styles. Over 160 aglets (lacing tips) were found as well as a variety of buckles and buttons of various composition. The native style of dress was to, "go naked as they were born, except that over their privates they wear a loincloth, of linen or some other kind of cloth" (Oviedo 1959:13). The clothing accessories mentioned above would not have been necessary had the colonists adopted the Indian's fashions. It may seem obvious that the Spanish colonists would not have "gone native" as far as clothing was concerned. However, the existence of this

array of fasteners gives positive material verification to the implicit assumptions that have been based on documentary records. It also reenforces the interpretation of the occupant's status. The clothing of the lower classes was extremely simple (Braudel 1985:316) having a minimum of metal accessories. Also found at Locus 19 was a silver aglet further strengthening this argument.

Little jewelry, apart from beads, or religious paraphernalia has been recovered at Puerto Real. Rather than an indication of low status or religious indifference, this probably reflects the manner in which such objects enter the archaeological record. Small, valuable items such as these usually are deposited as the result of loss rather than discard (Schiffer 1972). Very little of the interior of the structure was actually excavated, where such losses would be most likely to occur, or at least be recovered. The value of these items would also mitigate against the loss of a great many of these items in that greater care would be taken of such possessions. Beads were a popular trade item. Perhaps their presence outside the structure can be accounted for by the traffic in that area of the non-Hispanic inhabitants. The excavation of several pieces of book hardware suggest the presence of literate people at

Locus 19. Since books were something of a rarity in the 16th century as well as the ability to read them (Braudel 1985:40), this might be another indication of a high-status household.

Test 3

Structures at Puerto Real should employ local materials in their construction; however, the architectural style of the buildings and physical layout of the town should be Hispanic in nature. This implication follows from the hypothesized Spanish affiliations in highly visible areas of colonial culture, and also from mandated urban planning designs from the Crown (Zendegui 1977).

Although the site had been extensively robbed of its building materials by post 16th century occupants and archaeological excavation has been far less extensive, enough data were collected to satisfy the tests of the third implication. The building materials appear to have been obtained locally. The stone appears to come from the mountains just inland from the site as outcrops of this rock are visible in that area today. Given the limited cargo space aboard the infrequent vessels calling at Puerto Real, it would seem logical that the masonry might have also been obtained locally. However, Willis (1984:84) recovered a brick with a script pattern etched on one of its

surfaces. He suggests that this was a lot shipment mark indicating that the brick was made in Spain for shipment to the Indies. Chemical or compositional analysis would have to be performed to determine positively the place of origin of the bricks and barrel tile.

The fact that stone and masonry building materials were found argues against an aboriginal architectural style. As discussed in Chapter 4, the Taino bohio employed cane, mud, and straw in its construction. The layout of the structure (see Figure 6-18) also is not in keeping with the circular floorplan typical of the indigenous structures. The wall foundation probably represents the facade of a residential structure with an attached walled courtyard or the back wall of an enclosed courtyard both of which are representative of Spanish architecture (Manucy 1978).

The structure, itself, may have utilized the western portion of the wall. Three pieces of evidence lead to this conclusion. The drains are located at this end and would have serviced the house, emptying to the north. The brick-paved area is on the interior (southern) side of the western section of the wall. It may have served as flooring for part of the structure (Eberlein 1925:v). The midden was located just north of the western portion of the wall. The association

between a house and an area of refuse is explained by the documentary record. A 16th century ordinance for the city of Madrid forbade the disposal of "water, refuse, or other things" from windows and balconies. These were to be disposed of through the front door at prescribed times to avoid hitting passersby (Defourneaux 1966:63). Such an ordinance may not have been specifically in effect at Puerto Real, but the behavioral pattern may have followed from Spain. The alternative is that the foundation was the base of the back wall of an enclosed courtyard. The midden represents trash disposal behind this back wall. Unfortunately much of the area south of the wall had been disturbed by the construction of a large drainage canal by French planters thus obscuring any interior details of the structure.

The excavations at Puerto Real have provided an opportunity to determine whether the official town plan decreed in the latter half of the 16th century was implemented to correct haphazard town planning or whether it was merely a formalization of an urban design already in effect.

The archaeological excavation grid established by Willis, upon which all subsequent work has followed, was initially set in at an angle 30 degrees east of magnetic north so as to coincide with the alignment of

Building A (Willis 1984:50-57). The fenceline delineated in the 1981 field season (McEwan 1983) and the wall foundation uncovered during the 1984-85 field season were both perfectly aligned with this grid.

Classic grid pattern towns are built around a central plaza upon which face important buildings, such as the church, and which often served as a market place. Willis's (1984) excavations in the center of the site uncovered a structure which he identified as a church as well as an adjacent market area. Building B, excavated by Marrinan (1982) and also located at the center of the site appears to be another large public building. The masonry concentrations delineated by Williams (1986) form a fairly regular pattern around the central area of the site (see Figure 5-1). Thus it appears that, at least at Puerto Real, the grid town plan needed no royal edict to enforce its use.

Test 4

The diet of the colonist should show a mixture of the Iberian barnyard complex of peninsular Spain and mixed hunting-fishing strategies of the indigenous peoples. Specifically this would entail: the abandonment of traditional resources unsuited to the new environment; the incorporation of aboriginal patterns of wild faunal exploitation; development of a

domestic animal industry utilizing those species suited to the new environment.

When the Spaniards arrived in the Caribbean there were virtually no large mammals on Hispaniola (Parry and Sherlock 1971:2). The colonists did, however, bring a number of domesticated animals with them. These included cattle, swine, sheep, horses, dogs, and cats (Oviedo 1959:11). Many of the introduced animals did quite well in their new environment. So well, in fact, that Oviedo (1959:11) claimed that many had run wild, especially cattle, swine, cats, and dogs.

The reason many imported mammals did so well on Hispaniola is that they encountered virtually no competition, since there were no native ruminants. The native fauna was primarily avian or aquatic rather than terrestrial. The terrestrial that did exist was restricted to rodents, turtles, and other reptiles.

The overall pattern of the faunal assemblage recovered from Locus 19 is similar to that recovered from Loci 33/35 (Area 35) by McEwan (1983). This is not surprising since this area is also believed to be a high status residence within the city.

The fauna from Loci 33/35 was overwhelmingly mammal. In terms of biomass, cattle was the most prevalent taxa in this category with swine a close second. Pond turtles (Pseudemys sp.) were a

surprisingly large contributor to the colonists diet ranking just below swine. Their contribution appeared to increase through time. The combined avian and fish remains totalled less than 1% of the overall faunal assemblage (McEwan 1983:82-90).

Mammals also dominated the assemblage at Locus 19 accounting for 96% of the total biomass (see Table 7-3). Here again, cattle were most prevalent, followed by swine. Pond turtles were the third most important identifiable species, but accounted for only 4% of the total biomass as opposed to 7% at Loci 33/35. Even so, one must concur with McEwan (1983:91) that pond turtles are the major dietary adaptation of the Spanish colonists. However, they are not the only native species being used.

The colonists at Puerto Real consumed a wide variety of fish and shellfish. Fish in the assemblage included tarpon, bonefish, mullet, jack, and snappers among others. All of these species inhabit shallow coastal waters or a brackish estuarine environment. Artifacts (e.g. net weights and fish hooks) indicate that both nets and hooks were used to procure them.

It is difficult to determine who was doing the fishing. It would seem unlikely that a high status Spaniard would stoop to the manual labor of food gathering. There is the possible exception of an

occasional sport fishing venture. The alternative is that slaves were responsible for supplying the household with its fish (as well as other foodstuffs, no doubt). This implies that Spanish fishing technologies were adopted.

Fish may have actually contributed more to the diet than is apparent from the faunal sample. Recovery methods employed 1/4 inch mesh to screen the excavated soil; screen of this size mesh has been shown to be likely to miss many of the small and fragile fish bones (Casteel 1972). However, flotation of soil samples did not significantly increase the sample.

Another factor arguing for greater fish consumption than is represented in the faunal sample, is Catholicism. The Catholic calendar called for 166 meatless days including Lent (Braudel 1985:214). Given the documentary evidence, artifactual evidence and recovery bias it seems possible that fish occupied a more important place in the diet than the faunal record indicates, but how much more can not be determined at this time. Turtles, being aquatic, may also have been considered non-meat by the Spaniards. Thus their presence in the faunal assemblage may be connected to the Catholic calendar.

Perhaps even more interesting than the intrasite comparison is an intersite comparison with the nearby

aboriginal site at En Bas Saline. How did the Spanish colonial diet differ from that of the native inhabitants? The faunal assemblage at En Bas Saline could be divided into pre and post contact time periods. Over 60 different species were identified at En Bas Saline as opposed to 46 at Puerto Real. An even stronger contrast is seen when comparing the different faunal categories by biomass totals (Table 7-1). Fish, even given the same collection biases, is the most important category in the pre-contact faunal assemblage at En Bas Saline (the post-contact assemblage will not be discussed here as the question of Spanish impact on the native society is beyond the scope of this work). Next in abundance were mammals, but these were small rodents rather than the large domesticates of the Europeans. Reptiles make up 9% of the aboriginal fauna, but unlike the Europeans who focused almost exclusively on pond turtles, the natives at En Bas Saline also exploited sea turtles, iguanas, and snakes. A flightless rail, recently extinct, was the only bird species identified in the assemblage. Finally, like the Spaniards at Puerto Real, the Indians used a wide variety of invertebrate species. Because the biomass estimates for invertebrates were not comparable with those used for the vertebrates, their importance in the aboriginal diet can not be assessed at this time.

TABLE 7-1 BIOMASS: PUERTO REAL VS. EN BAS SALINE

TAXA	PR EARLY		PR LATE		EBS	
	wgt(kg)	%	wgt	%	wgt	%
MAMMAL	218.5	96	211.7	95	2.06	20
AVIAN	1.5	1>	.7	1>	.29	3
REPTILE	6.7	3	8.7	4	.92	9
FISH	1.7	1>	1.2	1>	6.79	68

The patterns of faunal exploitation appear very different between the two cultures. Clearly the major factor here is the introduction and success of domestic animals at the site. At St. Augustine this was also apparent, however wild terrestrial animals formed a relatively more important part of the high status individual's diet (Reitz and Cumbaa 1983). This difference from Puerto Real makes sense when one realizes the chief wild animal available in St. Augustine was white-tailed deer as opposed to the spiny rat or hutia of Hispaniola. McEwan (1983:98) concludes that

the difference in subsistence adaptation recognized archaeologically among Spanish New World colonies is thought to reflect the environmental parameters and the diverse composition and motives of the Spaniards in the respective settlements.

On the basis of the Puerto Real faunal data it is concluded that the environmental parameters for wild species availability and success of Old World domesticates is the most important factor in determining the diet of the colonists.

Test 5

The artifact and faunal assemblage will reflect a crystallization of the proposed Hispanic-American colonial pattern through time. It was stated in Chapter 4 that this should be apparent in all of the

above test implications when viewed through time. Specifically, variations among households from this predicted pattern should become less evident in later periods. In light of the limited time of occupation, this could present a problem.

A major handicap is the division of occupation into only two periods. Do changes between the early and late periods reflect a final, crystallized adaptive pattern or is this only a stage in an ongoing process of adaptation. That is, does the Late Period represent a plateau in a graph of culture change or is it only a point along a linear regression? Fortunately, the pattern is such at Puerto Real that the question of adaptive shift through time is quickly answered.

At Puerto Real the matter of adaptive response is resolved early in the occupation. The Spanish colonists quickly adopted the "Spanish colonial pattern" tested in this work and retained it. This is demonstrable in both the artifact and faunal assemblages. As can be seen from Table 7-2, there is a difference in the total quantity of artifacts through time but little difference through time in the proportional distribution of artifacts within specific functional and typological categories. For example, there were only 1,400 fragments of majolica in the Early Period artifact assemblage as opposed to

TABLE 7-2 EARLY vs. LATE CONTEXTS AT PUERTO REAL

CATEGORY		EARLY	LATE
MAJOLICA	#	1400	7682
	%	18.15	19.12
HISPANIC TABLEWARES	#	139	1513
	%	1.80	3.75
EUROPEAN UTILITARIAN WARES	#	1963	10870
	%	25.45	26.93
EUROPEAN TABLEWARES	#	36	163
	%	.47	.40
COLONO AND ABORIGINAL WARES	#	3526	17387
	%	45.72	43.07
KITCHEN ARTIFACTS	#	232	1037
	%	3.01	2.57
STRUCTURAL HARDWARE	#	226	1107
	%	2.93	2.74
WEAPONRY AND ARMOR	#	8	15
	%	.10	.04
CLOTHING AND SEWING ITEMS	#	116	297
	%	1.50	.74
PERSONAL ITEMS AND JEWELRY	#	24	169
	%	.31	.42
ACTIVITY RELATED ITEMS	#	24	38
	%	.31	.09
FURNITURE HARDWARE	#	1	9
	%	.03	.02
TOOLS	#	2	18
	%	.03	.04
TOYS AND GAMES	#	2	9
	%	.03	.02
HARNESS AND TACK	#	12	19
	%	.16	.05

4,574 pieces of majolica in the Late Period assemblage. However, in relation to the total number of artifacts in the respective assemblages, majolica made up 18.15% of the Early Period assemblage and 19.12% of the Late Period assemblage, a proportional difference of less than 1%. This similarity can be noted in virtually every artifact category.

Some shifts in particular artifact types can be noted but this has to do with replacement of styles and fashion within functional categories. That is, within a functional category (e.g. majolica) certain types of majolica might decline in popularity through time and be replaced by new majolica types. This does not affect the category's ranking in respect to the other categories. The value of this waxing and waning of types through time for the archaeologist is as a chronological tool. The primary dating tool of the historical archaeologist is the terminus post quem of various "marker" ceramic types. This tool, together with stratigraphic positioning was used to differentiate the Early from the Late Period at Locus 19.

The consistency in faunal patterning is even more apparent. Table 7-3 depicts an almost unchanged faunal assemblage through time at Locus 19. The faunal assemblage from Loci 33/35 could not be put in either a

TABLE 7-3 BIOMASS COMPARISONS AT PUERTO REAL

TAXA	L. 19 EARLY		L. 19 LATE		L. 33/35	
	wgt (kg)	%	wgt	%	wgt	%
MAMMAL	218.513	96	211.693	95	310.658	92
AVIAN	1.46	<1	.74	<1	.475	<1
REPTILE	6.73	3	8.72	4	24.895	7
FISH	1.667	<1	1.197	<1	1.085	<1

late or an early category, and should be considered simply as being from the 16th century (McEwan 1983:147). It also conforms closely to the faunal pattern delineated at Locus 19. Again, this suggests a continuity through time rather than a slowly crystallizing adaptive shift.

CHAPTER VIII
SUMMARY AND CONCLUSIONS

Summary

Excavations at Locus 19 have shown it to be a high status residence occupied primarily during the latter half of the 16th century. These conclusions are based on the amount and type of refuse associated with the structure and the relatively high proportion of Hispanic to aboriginal ceramics. There is evidence of an early 16th century occupation at the site though its exact nature could not be determined. The late period structure was located 100 m north of the town plaza and is interpreted as a residence with an attached walled courtyard.

Living in this large residence was a relatively wealthy Spaniard, his Spanish wife, and, based on reproductive potential, probably at least one child. The interior of their home and possessions reflected the high status of the family. Their table was set with fine majolicas and Italian glassware. Their clothing followed the fashions prevalent in Spain. In another area of the house, slaves, probably African, prepared the food they had collected in cooking vessels

they had made. Their master, judging by the abundance of coins and leather-working tools, may have been a merchant dealing in hides and slaves. The porcelain in his household suggests that at least some of his business was done with the Portuguese corsairs that frequented the harbor.

The interpretation of the layout and function of Locus 19 serves as a backdrop to the true goal of the project; identifying patterns in the material culture that reflect the changes that the Spaniards underwent on their way to becoming creoles. In St. Augustine Deagan determined that male oriented, socio-technic artifacts were Hispanic in nature while female oriented, technomic artifacts showed evidence of acculturation with the non-Hispanic population. This study was concerned with how Spaniards, in general, changed as a result of their colonial experiences. The accomplishment of this goal involved testing the applicability of the patterning of the material culture at one Spanish colonial site to a different Spanish colonial site in order to determine pan-Hispanic regularities in the archaeological record.

Conclusions based on the results of the analyses tend to support the hypothesized pattern of Spanish colonial adaptation. Ceramics associated with low social visibility food preparation and storage

activities do show a significant admixture of European and locally manufactured ceramics. Tablewares, ornamentation, clothing items and other highly visible status items were almost exclusively European in origin. The structure, as far as can be determined, was built in accordance with Spanish architectural traditions and new ideas concerning urban planning. The alternative would have been an incorporation of non-Hispanic traits into the socio-technic as well as the technomic sphere of artifacts, but this did not occur. This pattern appears to have changed little through time.

The material patterning at Puerto Real closely resembles that of St. Augustine in terms of the ceramic assemblage categories. Specific items in the other categories reflect the different activities of the site's inhabitants. A significant general difference from St. Augustine can be seen in the faunal pattern. As discussed in the previous chapter, this is probably due to the differing environmental constraints placed upon the preferred Iberian foodways. The colonial diet was clearly different than aboriginal subsistence practices. The primary variable in the differences between the diets of the Indians, the Spanish colonists at St. Augustine, and the Spanish colonists at Puerto Real appears to have been the success of the introduced

domesticates. The primary difference from Peninsular Spain was the relative abundance of meat, specifically beef and pork.

Conclusions

What can be concluded from the research at Puerto Real? Puerto Real was one of first European settlements in the part of the world that has come to be known as Latin America. Foster (1960:2) states that, "Hispanic America can be thought of as an enormous culture area, modern in origin, distinct from British America and from all other world areas." Even early Latin America was recognised as socially if not culturally distinct from Spain. Offspring of the colonists, born in the New World, were called creoles and treated differently from those born in peninsular Spain (cf. Morner 1967, McAlister 1963).

This early Hispanic American culture was an unequal amalgam of Spanish and Native American cultural traits. Research at Puerto Real allows the delineation of those areas that were primarily Spanish and those that received non-Hispanic influences. It appears that outwardly the cultural pattern was composed primarily of Hispanic traits (e.g. dress, architecture, interior furnishings). Non-Hispanic traits, at least as seen in the material assemblage, are found in areas traditionally associated with women's activities,

specifically food preparation technologies. The conclusion gained through archaeological research confirms the Hispanic American cultural pattern suggested by Deagan (1974) for St. Augustine. Specifically it is a synthesis of male Spanish traits and female non-Hispanic traits. That the Spanish traits appear most visible is a reflection of social conditions during the 16th century.

Why are these conclusions important? In any discipline that claims to use the scientific method there are two major concerns: generating hypotheses, and testing them. This research dealt with the latter concern, hypothesis testing. The hypothesis, generated by Deagan (1983:271) posits that processes of adaptation experienced by the Spanish colonists at St. Augustine were common to much of the Spanish New World. A reasonable hypothesis, but lacking validation. Hempel (1965:6) states that

what determines the soundness of a hypothesis is not the way it is arrived at . . . but the way it stands up when tested, i.e., when confronted with relevant observational data.

Binford (1972:90) follows this line of reasoning arguing that

the generation of inferences regarding the past should not be the end-product of the archaeologist's work ... once a proposition has been advanced - no matter by what means it was reached - the next task is to deduce a series of testable hypotheses which, if

verified against independent empirical data, would tend to verify the proposition.

In a nutshell, this study tested the pan-Hispanicity of the colonial pattern developed at St. Augustine.

Identification of a pan-Hispanic response to colonialism is a step towards the development of a general pattern of colonial adaptation.

To reiterate, the hypothesis was supported by the evidence recovered at Puerto Real. The pattern does seem to have applicability beyond St. Augustine. This does not exclude the possibility that other explanations exist for the data, but it does allow us to continue to use the hypothesis to guide future research. Truth is, after all, only the best current hypothesis. With this in mind, new hypotheses can be generated to test on new data awaiting excavation at Puerto Real.

Suggestions for Future Research

The research potential of Puerto Real has only begun to be realized. Of the 57 masonry loci defined by Williams (1986), only four have been investigated. To further test the Spanish colonial pattern a low status household needs to be excavated. Would a low status household show a higher proportion of locally-made ceramics, being less able to obtain Spanish goods? This was the case in St. Augustine (Deagan 1983:240).

Locus 39 seems to partially fill this expectation but it has been interpreted as a cattle butchering area rather than strictly as a residence (Reitz 1985) which makes its comparability questionable. In any case, several more loci, of both high and low status should be excavated to compensate for idiosyncrasies peculiar to individual loci.

Another study, beyond the scope of the present work, that can and should be performed is a comparison between Puerto Real and the Taino site at En Bas Saline. The present work examines the relatively minor impact of the native culture upon the Spanish colonists. A complementary study would be an assessment of the far greater impact of the Spanish upon the native population. Historically it is known that the Indians had all but disappeared within the first two decades following Spanish contact. At Puerto Real the native decline is reflected through a shift in ceramic style and technology at the site. En Bas Saline should show evidence of disruption in every artifact category during this final catastrophic period.

Puerto Real has many years of fruitful research left in it, but it is not alone. Bayaha, the town to which the inhabitants of Puerto Real were forcibly relocated has been discovered (Hamilton and Hodges

1982). This site was occupied from 1578 to 1605. It would be interesting to see what sort of community developed that had the benefit of 75 years of colonial experience and virtually no native population to contend with. The model developed in St. Augustine and tested at Puerto Real in this study can serve to guide this future research.

On a more general, anthropological scale, the model of colonial adaptation developed for Hispanic sites can be tested at non-Hispanic colonial sites in the Americas. Did the French and British adapt to their new surroundings in a manner similar to the Spanish? If not, how did they differ and what factors might account for these differences? Again, the model tested at Puerto Real can serve as a null hypothesis for these inquiries.

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APPENDIX 1
PUERTO REAL ANALYSIS SHEET

SITE _____	FS _____
ANALYST _____	UNIT _____
DATE _____	LEVEL _____
FAUNA _____ g	SHELL _____ g SOIL _____

1) MAJOLICA:	FRAGS	RIMS	NOTES	9) PERSONAL
				10) ACTIVITIES
2) UTILITARIAN:	FRAGS	RIMS	NOTES	11) UID METAL
				12) MASONRY
3) EUROTABLE:	FRAGS	RIMS	NOTES	13) FURNITURE
				14) TOOLS
4) ABORIGINAL:	FRAGS	RIMS	NOTES	15) TOYS
				16) HHARDWARE
5) KITCHEN				17) RELIGIOUS
				18) MISC
6) ARCHITECTURE				19) UNAFFIL
7) WEAPONRY				20) TABLEWARES
8) CLOTHING				

APPENDIX 2
CATEGORIES ON THE CODING SHEETS

- 1) Site - Distinguishes specific field season;
- 2) FS# - Field specimen or sample number;
- 3) Unit# - Each excavation unit was numbered sequentially;
- 4) North coordinate - Distance north from the SW corner of the excavation unit to the grid reference point;
- 5) East Coordinate - Distance east from the SW corner of the excavation unit to the grid reference point;
- 6) Provenience - Refers to specific level, area or feature in the excavation unit;
- 7) TPQ - Terminus Post Quem, date after which the provenience was deposited;
- 8) Item - Artifact type in coded form (see Appendix 2);
- 9) Frequency - Number of the artifact type in the provenience;
- 10) Weight - Weight (in grams) of the artifact type in the provenience. This category was primarily applied to fauna and masonry items;
- 11) Group - Functionally specific category corresponding to the artifact type (see Table A) ;

- 12) Composition - Optional descriptive category for indicating what the artifact was made of;
- 13) Color - Optional descriptive category for denoting color of the object;
- 14) Form - Optional descriptive category for indicating the shape of the object;
- 15) Modifier - Optional descriptive category for indicating any unusual quality of the artifact (i.e. glazing, gilding, sooting).

The parameters governing data entry limited the length of each entry to 80 columns. To accomodate all the data in the limited space available a coding system was devised. Those codes significantly shorten the length of the artifact types and modifiers.

APPENDIX 3
PROVENIENCE GUIDE

FS #	EXCAV. UNIT	PROV.	PERIOD	CHRONO. MARKER
3074	920.5N/722.5E	L. 1	L	Porcelain
3075	920.5N/722.5E	L. 2	E	Columbia Plain
3076	920.5N/722.5E	L. 3	E	Columbia Plain
3077	917N/723.5E	L. 1	L	Orange Micaceous
3078	917N/723.5E	L. 2	E	Columbia Plain
3079	917N/723.5E	L. 3	E	
3080	917N/723.5E	Area 1	E	Columbia Plain
3081	909.5N/726.5E	L. 2	E	Columbia Plain
3082	913N/725E	L. 1	E	Columbia Plain
3083	909.5N/726.5E	L. 1	L	Orange Micaceous
3084	913N/725E	L. 2	E	Columbia Plain
3085	922.5N/819E	L. 1	E	
3086	926N/817.5E	L. 1	E	Melado
3087	933.5N/814E	L. 1	E	
3088	929.5N/815.5E	L. 1	E	
3089	870N/810E	Area 1	L	Melado
3090	870N/810E	Area 2	L	Stratigraphy
3091	870N/810E	Area 3	L	Stratigraphy
3092	874N/810E	L. 1	L	Orange Micaceous
3093	870N/810E	L. 2	L	Orange Micaceous
3094	870N/810E	Area 4	E	Melado
3095	870N/810E	Area 5	E	Melado
3096	870N/810E	Area 6	E	Stratigraphy
3097	870N/810E	L. 1	L	Orange Micaceous
3098	874N/810E	L. 2	L	Orange Micaceous
3099	878N/810E	L. 1	L	Orange Micaceous
3100	874N/810E	L. 3	E	Columbia Plain
3101	874N/810E	Area 7	E	Stratigraphy
3102	874N/810E	Posthole 2	E	Columbia Plain
3103	874N/810E	Posthole 3	E	Columbia Plain
3104	874N/810E	Posthole 4	E	Stratigraphy
3105	878N/810E	L. 2	L	Orange Micaceous
3106	878N/810E	L. 3	E	Columbia Plain
3107	874N/810E	Postmold 1	L	Stratigraphy
3108	874N/810E	L. 4	E	Columbia Plain
3109	882N/810E	L. 1	L	Orange Micaceous
3110	878N/810E	Postmold 2	E	Stratigraphy
3111	878N/810E	Area 8	E	Columbia Plain
3112	878N/810E	L. 4	E	Columbia Plain

FS#	EXCAV. UNIT	PROV.	PERIOD	CHRONO. MARKER
3113	882N/810E	L. 2	L	Orange Micaceous
3114	882N/810E	L. 3	L	Orange Micaceous
3115	878N/810E	Posthole 1	E	Stratigraphy
3116	878N/810E	Posthole 2	E	Stratigraphy
3117	882N/810E	Area 1	L	Stratigraphy
3118	876N/810E	L. 1	L	Orange Micaceous
3119	886N/810E	L. 1	L	Orange Micaceous
3120	886N/810E	L. 2	L	Porcelain
3121	876N/810E	Bone conc.	E	Stratigraphy
3122	876N/810E	L. 2	L	Orange Micaceous
3123	876N/813E	L. 1	L	Orange Micaceous
3124	876N/813E	L. 2	L	Orange Micaceous
3125	876N/810E	L. 3	E	Columbia Plain
3126	876N/813E	L. 3	L	Stratigraphy
3127	876N/813E	Fea. 1 L. 1	L	Stratigraphy
3128	876N/813E	Fea. 1 L. 2	L	Orange Micaceous
3129	876N/810E	Postmold 4	E	Stratigraphy
3130	876N/813E	Fea. 1 L. 3	E	Stratigraphy
3131	876N/813E	Area 1	L	Stratigraphy
3132	876N/816E	L. 1	L	Orange Micaceous
3133	876N/816E	Fea. 2 L. 1	L	Orange Micaceous
3134	876N/813E	L. 4	E	Columbia Plain
3135	876N/813E	Postmold 1	L	Stratigraphy
3136	876N/816E	L. 2	L	Orange Micaceous
3137	876N/819E	L. 1	L	Orange Micaceous
3138	876N/816E	L. 3	L	Porcelain
3139	876N/819E	L. 2	L	Porcelain
3140	876N/816E	Area 1	L	Stratigraphy
3141	876N/816E	Postmold 1	E	Columbia Plain
3142	876N/816E	L. 4	E	Columbia Plain
3143	876N/819E	L. 3	L	Orange Micaceous
3144	876N/819E	L. 4	E	Stratigraphy
3145	876N/816E	L. 5	E	Columbia Plain
3146	876N/816E	Area 2	E	Columbia Plain
3147	876N/816E	Area 4	E	Stratigraphy
3148	876N/822E	L. 1	L	Orange Micaceous
3149	880N/817.5E	L. 1	L	Orange Micaceous
3150	880N/817.5E	L. 2	L	Orange Micaceous
3151	880N/817.5E	Area 1	L	Stratigraphy
3152	876N/822E	L. 2	L	Orange Micaceous
3153	880N/817.5E	Postmold 1	L	Stratigraphy
3154	878N/819E	L. 1	L	Orange Micaceous
3155	876N/825E	L. 1	L	Porcelain
3156	878N/819E	L. 2	L	Orange Micaceous
3157	876N/825E	L. 2	E	Columbia Plain
3158	876N/814.5E	L. 1	L	Orange Micaceous
3159	878N/819E	L. 3	L	Orange Micaceous
3160	876N/814.5E	L. 2	L	Orange Micaceous
3161	880N/819E	L. 1	L	Orange Micaceous

FS#	EXCAV. UNIT	PROV.	PERIOD	CHRONO. MARKER
3162	880N/819E	L. 2	L	Orange Micaceous
3163	880N/819E	Fea. 3 L. 1	L	Orange Micaceous
3164	880N/819E	Area 1	L	Porcelain
3165	876N/814.5E	L. 3	L	Orange Micaceous
3166	880N/819E	L. 3	L	Orange Micaceous
3167	876N/814.5E	Area 1	L	Stratigraphy
3168	878N/819E	Fea.3 L. 1	L	Cologne SW
3169	880N/817.5E	L. 3	L	Orange Micaceous
3170	876N/814.5E	Area 3	L	Stratigraphy
3171	880N/817.5E	Ext. Area 1	L	Stratigraphy
3172	880N/817.5E	Area 2	E	Stratigraphy
3173	876N/814.5E	Area 2 L. 1	L	Stratigraphy
3174	880N/817.5E	L. 4	E	Columbia Plain
3175	876N/814.5E	L. 4	E	Columbia Plain
3176	880N/817.5E	Fea. 3 L. 1	E	Columbia Plain
3177	876N/814.5E	Area 2 L. 2	E	Columbia Plain
3178	880N/817.5E	Fea. 3 L. 2	E	Columbia Plain
3179	876N/814.5E	Fea. 1 L. 1	E	Columbia Plain
3180	878N/819E	Postmold 1	E	Columbia Plain
3181	876N/814.5E	Lev. 5 Sl/2	E	Columbia Plain
3182	876N/814.5E	Fea. 1 L. 2	E	Columbia Plain
3183	876N/814.5E	Fea. 1 L. 3	E	Stratigraphy
3184	876N/814.5E	Lev. 5	E	Columbia Plain
3185	878N/819E	Fea. 3 L. 2	E	Columbia Plain
3186	878N/819E	Fea. 3 L. 3	E	Stratigraphy
3187	878N/819E	Area 2	E	Stratigraphy
3188	876N/831E	L. 1	L	Porcelain
3189	876N/834E	L. 1	L	Orange Micaceous
3190	876N/831E	L. 2	L	Cologne SW
3191	876N/831E	Area 2	L	Stratigraphy
3192	876N/831E	Area 1	L	Stratigraphy
3193	876N/831E	L. 3	E	Columbia Plain
3194	876N/834E	L. 2	L	Orange Micaceous
3195	888N/819E	L. 1	E	Columbia Plain
3196	888N/822E	L. 1	E	Columbia Plain
3197	888N/819E	Area 1	E	Olive Jar
3198	888N/819E	L. 2	E	Melado
3199	886N/820.5E	L. 1	L	Orange Micaceous
3200	878N/852E	L. 1	E	Columbia Plain
3201	886N/820.5E	L. 2	L	Orange Micaceous
3202	878N/852E	L. 2	E	Columbia Plain
3203	876N/861.5E	L. 1	L	Orange Micaceous
3204	876N/837E	L. 1	L	Orange Micaceous
3205	876N/861.5E	L. 2	L	Orange Micaceous
3206	876N/861.5E	L. 3	L	Orange Micaceous
3207	876N/837E	L. 2	L	Orange Micaceous
3208	876N/837E	Area 1	L	Stratigraphy
3209	877.5N/817.5E	L. 1	L	Orange Micaceous
3210	877.5N/817.5E	L. 2	E	Columbia Plain

FS #	EXCAV. UNIT	PROV.	PERIOD	CHRONO. MARKER
3211	876N/837E	Postmold 1	L	Stratigraphy
3212	877.5N/817.5E	L. 3	E	Columbia Plain
3213	877.5N/817.5E	L. 4	E	Columbia Plain
3214	Tr. A Sec. 1	L. 1	E	Columbia Plain
3215	877.5N/820.5E	L. 1	L	Columbia Plain
3216	876N/814.5-816E	N. Profile		
3217	Tr. A Sec. 2	L. 1	E	Columbia Plain
3218	877.5N/820.5E	L. 2	L	Stratigraphy
3219	877.5N/820.5E	L. 3	L	Orange Micaceous
3220	Tr. A Sec. 3	L. 1	L	Orange Micaceous
3221	877.5N/820.5E	Postmold 1	E	Columbia Plain
3222	876N/837E	L. 3	E	Columbia Plain
3223	Tr. A Sec. 4	L. 1	L	Orange Micaceous
3224	Tr. A Sec. 3	L. 2	E	Columbia Plain
3225	Tr. B Sec. 1	L. 1	L	Orange Micaceous
3226	Tr. B Sec. 2	L. 1	E	Columbia Plain
3227	Tr. B Sec. 3	L. 1	L	Cologne SW
3228	Tr. C Sec. 1	L. 1	L	Stratigraphy
3229	Tr. C Sec. 2	L. 1	L	Orange Micaceous
3230	Tr. C Sec. 1	L. 2	L	Stratigraphy
3231	Tr. C Sec. 2	L. 2	E	Columbia Plain
3232	Tr. C Sec. 2	L. 3	E	Columbia Plain
3233	Tr. C Sec. 1	L. 3	L	Orange Micaceous
3234	Tr. C Sec. 1	L. 4	E	Columbia Plain
3235	876N/831E	Profile		
3236	Tr. D Sec. 1	L. 1	L	Orange Micaceous
3237	Tr. D Sec. 1	L. 2	E	Columbia Plain
3238	876N/834E	Area 1	L	Stratigraphy
3239	876N/834E	L. 3	L	Orange Micaceous
3240	Tr. D Sec. 3	L. 1	L	Orange Micaceous
3241	Tr. D Sec. 3	L. 2	E	Columbia Plain
3242	Tr. D Sec. 2	L. 1	L	Stratigraphy
3243	873N/826.5E	L. 1	E	Columbia Plain
3244	Tr. D Sec. 3	L. 3	E	Olive Jar
3245	873N/826.5E	L. 2	E	Columbia Plain
3246	873N/828E	L. 1	E	Columbia Plain
3247	873N/825E	L. 1	E	Columbia Plain
3248	873N/825E	L. 2	E	Columbia Plain
3249	873N/828E	L. 2	E	Columbia Plain
3250	Tr. D Sec. 1	L. 3	L	Orange Micaceous
3251	Tr. C Sec. 1	Feature 4	E	Stratigraphy
3252	873N/823.5E	L. 1 & 2	L	Orange Micaceous
3253	873.5N/828E	L. 1 & 2	E	Columbia Plain
3254	873N/820.5E	L. 1	L	Orange Micaceous
3255	873N/829.5E	L. 1 & 2	E	Columbia Plain
3256	873N/822E	L. 1	L	Orange Micaceous
3257	876N/834E	L. 3	E	Columbia Plain
3258	Tr. F	L. 1	L	Orange Micaceous
3259	Tr. E Sec. 1	L. 1 & 2	L	Orange Micaceous

FS#	EXCAV. UNIT	PROV.	PERIOD	CHRONO. MARKER
3260	Tr. F	L. 2	L	Orange Micaceous
3261	872N/820.5E	L. 1	L	Orange Micaceous
3262	874N/822E	L. 1 & 2	E	Columbia Plain
3263	872N/820.5E	L. 2	L	Orange Micaceous
3264	873N/819.5E	L. 1	L	Orange Micaceous
3265	872N/819.5E	L. 1	L	Orange Micaceous
3266	872N/822E	L. 1	L	Orange Micaceous
3267	872N/819.5E	L. 2	L	disturbed
3268	872N/822E	L. 2	L	Orange Micaceous
3269	872N/826E	L. 1	L	Stratigraphy
3270	872N/824E	L. 1	L	Sevilla B/B
3271	872N/824E	L. 2	L	Orange Micaceous
3272	872N/826E	L. 2	L	Orange Micaceous
3273	872N/828E	L. 1	L +	pipestem
3274	872N/830E	L. 1	L	Orange Micaceous
3275	872N/828E	L. 2	E	Columbia Plain
3276	872N/830E	L. 2	E	Columbia Plain
3277	872N/830E	L. 3	E	Columbia Plain
3278	872N/828E	L. 3	E	Columbia Plain
3279	872N/818E	L. 1	L	Orange Micaceous
3280	870N/820E	L. 1	L	Porcelain
3281	872N/818E	L. 2	L	Orange Micaceous
3282	870N/820E	L. 2	L	Orange Micaceous
3283	874N/818E	L. 1	L	Orange Micaceous
3284	874N/820E	L. 1	L	Orange Micaceous
3285	874N/818E	L. 2	L	Orange Micaceous
3286	874N/820E	L. 2	L	Orange Micaceous
3287	876N/820E	L. 1	L	Orange Micaceous
3288	872N/832E	L. 1	L	Stratigraphy
3289	876N/820E	L. 2	L	Sevilla B/B
3290	872N/832E	L. 2	L	Orange Micaceous
3291	874N/832E	L. 1	L	Orange Micaceous
3292	872N/832E	L. 3	L	Orange Micaceous
3293	874N/832E	L. 2	L	Orange Micaceous
3294	874N/832E	Area 1	L	Stratigraphy
3295	874N/832E	Area 2	L	Stratigraphy
3296	876N/832E	L. 1	L	Orange Micaceous
3297	874N/832E	L. 3	L	Orange Micaceous
3298	872N/832E	L. 4	L	Orange Micaceous
3299	876N/832E	L. 2	L	Orange Micaceous
3300	874N/832E	Area 3	L	Orange Micaceous
3301	872N/826E	L. 3	E	Columbia Plain
3302	876N/832E	L. 3	L	Ligurian B/B
3303	868N/826E	L. 1	L	Orange Micaceous
3304	872N/834E	L. 1	L	Orange Micaceous
3305	868N/826E	L. 2	L	Orange Micaceous
3306	868N/826E	L. 3	L	Orange Micaceous
3307	872N/834E	L. 2	L	Orange Micaceous
3308	866N/826E	L. 1	L	Porcelain

FS#	EXCAV. UNIT	PROV.	PERIOD	CHRONO.	MARKER
3309	872N/834E	L. 3	E		Columbia Plain
3310	866N/826E	L. 2	L		Orange Micaceous
3311	864N/826E	L. 1	L		Porcelain
3312	862N/826E	L. 1	L		Stratigraphy
3313	862N/826E	L. 2	L		Orange Micaceous
3314	864N/826E	L. 2	L		Porcelain
3315	862N/826E	L. 3	L		Orange Micaceous
3316	860N/826E	L. 1	E		Columbia Plain
3317	860N/826E	L. 2	E		Columbia Plain
3318	872N/820E	L. 3	L		Orange Micaceous
3319	876N/826E	L. 1	L		Orange Micaceous
3320	878N/826E	L. 1	L		Orange Micaceous
3321	876N/826E	L. 2	E		Columbia Plain
3322	878N/826E	L. 2	L		Cologne SW
3323	872N/818E	L. 3	L		Ligurian B/B
3324	880N/826E	L. 1	L		Porcelain
3325	874N/826E	L. 1	L		Cologne SW
3326	874N/826E	L. 2	E		Columbia Plain
3327	874N/818E	L. 3	L		Orange Micaceous
3328	880N/826E	L. 2	L		Orange Micaceous
3329	874N/826E	L. 3	E		Columbia Plain
3330	870N/826E	L. 1	L		Orange Micaceous
3331	880N/826E	L. 3	L		Orange Micaceous
3332	874N/820E	L. 3	L		Ligurian B/B
3333	870N/826E	L. 2	L		Orange Micaceous
3334	872N/816E	L. 1	L		Orange Micaceous
3335	874N/816E	L. 1	L		Feldspar-inlaid
3336	870N/826E	L. 3	L		Orange Micaceous
3337	872N/816E	L. 2	L		Orange Micaceous
3338	876N/818E	L. 1	L		Orange Micaceous
3339	874N/816E	L. 2	L		Orange Micaceous
3340	876N/818E	L. 2	L		Porcelain
3341	872N/816E	L. 3	L		Orange Micaceous
3342	874N/816E	L. 3	L		Orange Micaceous
3343	876N/818E	L. 3	E		Columbia Plain
3344	872N/814E	L. 1	L		Orange Micaceous
3345	876N/818E	L. 4	E		Melado
3346	876N/817E	L. 1	L		Orange Micaceous
3347	874N/814E	L. 1	L		Cologne SW
3348	876N/817E	L. 2	E		Columbia Plain
3349	872N/814E	L. 2	L		Porcelain
3350	876N/817E	L. 3	E		Columbia Plain
3351	876N/817E	L. 4	E		Columbia Plain
3352	874N/812E	L. 1	L		Cologne SW
3353	874N/814E	L. 2	L		Orange Micaceous
3354	872N/814E	L. 3	E		Columbia Plain
3355	874N/814E	Area 1	L		Stratigraphy
3356	874N/812E	L. 2	L		Orange Micaceous
3357	874N/814E	L. 3	E		Columbia Plain

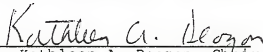
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3358	872N/814E	L. 4	E	Columbia Plain
3359	874N/812E	L. 3	E	Columbia Plain
3360	874N/814E	L. 4	E	Columbia Plain
3361	872N/812E	L. 1	L	Feldspar-inlaid
3362	870N/814E	L. 1	L	Orange Micaceous
3363	872N/816E	L. 4	L	Orange Micaceous
3364	870N/814E	L. 2	L	Orange Micaceous
3365	872N/812E	L. 2	L	Orange Micaceous
3366	872N/818E	L. 4	L	Porcelain
3367	870N/812E	L. 1	L	Porcelain
3368	872N/812E	L. 3	L	Orange Micaceous
3369	870N/812E	L. 2	L	Orange Micaceous
3370	872N/810E	L. 1	L	Orange Micaceous
3372	870N/812E NE	L. 1	L	Stratigraphy
3373	870N/812E NE	L. 2	L	Stratigraphy
3374	870N/816E	L. 1	L	Orange Micaceous
3375	870N/812E	L. 3	E	Columbia Plain
3376	870N/814E	L. 3	E	Columbia Plain
3377	872N/810E W1/2	L. 2	L	Orange Micaceous
3378	870N/816E	L. 2	L	Orange Micaceous
3379	872N/808E N1/2	L. 1	L	Porcelain
3380	870N/816E	L. 1	L	Orange Micaceous
3381	870N/816E	L. 2	L	Stratigraphy
3382	870N/820E	L. 3	E	Caparra Blue
3383	872N/808E N1/2	L. 2	L	Cologne SW
3384	870N/812-814E	Fea. 6 L. 1	L	Orange Micaceous
3385	870N/818E	L. 1	L	Orange Micaceous
3386	870N/812E	Feature 6	L	Stratigraphy
3387	870N/816E	Feature 6	L	Stratigraphy
3388	870N/816E	Feature 6	L	Stratigraphy
3389	872N/806E N1/2	L. 1	L	Orange Micaceous
3392	872N/814E	Feature 6	L	Stratigraphy
3393	870N/818E	L. 2	L	Orange Micaceous
3394	872N/806E S1/2	L. 1	L	Stratigraphy
3395	870N/818E	L. 3	E	Caparra Blue
3396	872N/806E N1/2	L. 2	L	Stratigraphy
3397	872N/806E S1/2	L. 2	L	Orange Micaceous
3398	872N/804E N1/2	L. 1	E	Columbia Plain
3399	874N/808E S1/2	L. 1 & 2	L	Feldspar-inlaid
3400	872N/804E N1/2	L. 2	E	Columbia Plain
3401	874N/808E S1/2	L. 3	L	Cologne SW
3402	872N/802E	L. 1 & 2	E	Columbia Plain
3403	872N/800E	L. 1 & 2	E	Columbia Plain
3404	874N/808E S1/2	L. 4	L	Feldspar-inlaid
3405	872N/814E N1/2	L. 5+	E	Columbia Plain
3406	872N/814E S1/2	L. 5+	E	Columbia Plain
3407	872N/796E N1/2	L. 1 & 2		
3408	872N/794E	L. 1 & 2	E	Columbia Plain

BIOGRAPHICAL SKETCH

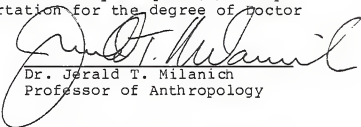
Charles R. Ewen was born in Mansfield, Ohio, on November 27, 1956. He moved extensively around the midwestern and southern U.S. while growing up but was able to stay in Illinois long enough to attend Naperville Central High School immediately after which he moved again. After acclimating to Minneapolis, he received a B.A. in anthropology from the University of Minnesota. A seasonally more sensible move took him to Florida where he earned an M.A. in anthropology at the Florida State University in 1983.

Charles chose to finish his student years at the University of Florida in Gainesville. He received his doctorate in the spring of 1987 allowing him to pursue the only career he had ever considered.

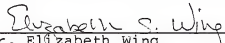
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Dr. Kathleen A. Deagan, Chair
Professor of Anthropology

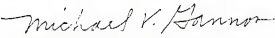
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Dr. Jerald T. Milanich
Professor of Anthropology

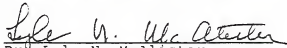
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Dr. Elizabeth Wing
Professor of Anthropology

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Dr. Michael V. Gannon
Professor of History

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Dr. Lyle N. McAlister
Distinguished Service
Professor of History

This dissertation was submitted to the Graduate Faculty of the Department of Anthropology in the College of Liberal Arts and Sciences and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

May 1987

Dean, Graduate School

